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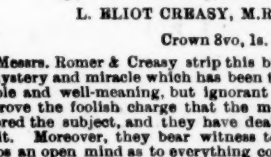

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An Analysis
OF
CASES OF TETANUS TREATED IN HOME MILITARY HOSPITALS

FROM AUGUST 1ST, 1915, TO JULY 31ST, 1916.

BY SIR DAVID BRUCE, C.B., F.R.S., F.R.C.P.,
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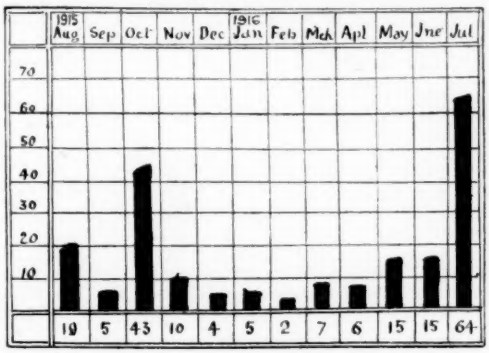
LAST year an analysis of cases of tetanus treated in home military hospitals between August 4th, 1914, and July 31st, 1915, was made out and published on Oct. 23rd, 1915, in the *British Medical Journal* and THE LANCET. The present paper is a continuation of the same subject, and gives an analysis of the cases occurring in home military hospitals from August 1st, 1915, to July 31st, 1916.

During the past year reports on 195 cases have been sent in; of these, 99 recovered and 96 died—a mortality of 49·2 per cent. In the preceding year there were 231 cases, with a mortality of 57·7 per cent.

THE DISTRIBUTION OF CASES OF TETANUS BETWEEN AUGUST 1ST, 1915, AND JULY 31ST, 1916.

Diagram I. represents the number of cases which occurred in each month. This diagram merely gives the number of cases which occurred in home hospitals during each month, without relation to the number of wounded, this information not being available at present. The rise in the number of cases during October and July represents the rise in the number of wounded men due to more activity at the front and not to any effect of season.

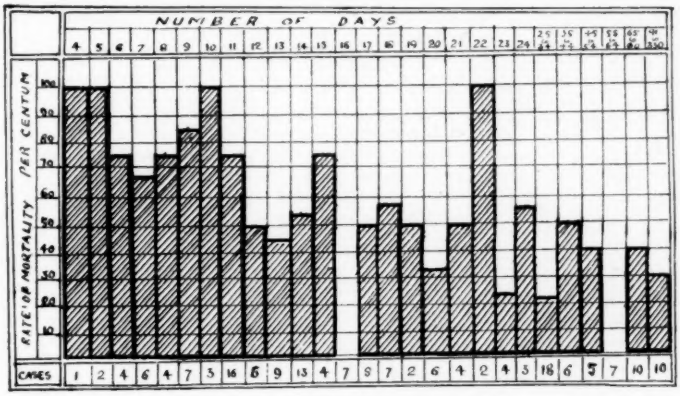
DIAGRAM I.



RELATION OF THE NUMBER OF DAYS WHICH ELAPSED BETWEEN THE DATE OF WOUND AND THE ONSET OF SYMPTOMS AND THE RATE OF MORTALITY.

Diagram II. shows that in the cases dealt with, if the symptoms of tetanus appeared within ten days of receiving the wound, the mortality was 81·5 per cent.; if between the eleventh and twenty-fifth day, 52·2 per cent.; the remaining 55 cases, with an incubation period of from 26 to 330 days, 27·2 per cent.

DIAGRAM II.



THE INCUBATION PERIOD, OR NUMBER OF DAYS WHICH ELAPSE BETWEEN THE DATE OF WOUND AND THE ONSET OF TETANUS SYMPTOMS.

Curve A shows the number of cases which occurred on each day from the fourth day after the date of wound.

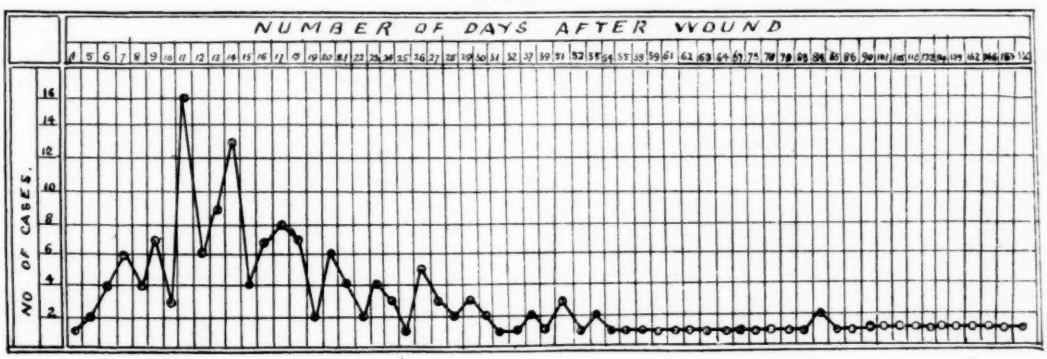
From this curve it will be seen that in the cases of tetanus under consideration more occurred on the eleventh day after the wound than on any other day. The incubation period during 1915–16 varied from 4 to 330 days. On comparing this curve with that of the preceding year it will be seen that more cases with a short incubation period occurred in 1914–15 than in 1915–16, and that more cases with a long incubation have occurred in the latter series than in the former. In 1914–15 there were 87 cases with an incubation period up to 10 days; in 1915–16 there were only 27 cases with this short incubation period.

In 1914–15 there were only 12 cases with an incubation period of more than 22 days; whereas in 1915–16 the number of such cases was 62. This may be due to the introduction of prophylactic injections which, it will be remembered, were only begun some months after the beginning of the war.

TETANUS OCCURRING AFTER OPERATIVE INTERFERENCE WITH THE WOUND.

Table I. gives the cases, 15 in all, in which tetanus is reported to have followed on an operation. It would almost appear as if in some cases everything was prepared for the onset of the tetanic symptoms, only awaiting the stimulus of the operation. Thus in 3 cases the symptoms appeared 24 hours after the operation and one within two days.

CURVE A.



In not one of these cases was a prophylactic dose of antitoxin reported to have been given at the time of the operation. There were 9 recoveries and 6 deaths, a mortality of 40·0 per cent.

TABLE I.

No. of case.	Date of wound.	Date of operation.	Date of tetanus.	Days after wound.	Days after operation.	Nature of wound.	Nature of operation.	Recovered.	Died.
82	12/11/14	3/12/14	5/12/14	23	2	L. hand.	Opened up.	R	—
210	28/4/15	13/5/15	14/5/15	16	1	R. leg.	,,	—	D
219	1/5/15	18/6/15	26/6/15	56	8	L. thigh, fracture.	Plating bone	—	D
235	9/5/15	6/7/15	7/7/15	58	1	Sole r. foot, l. arm, l. foot.	Amputation.	R	—
246	24/5/15	18/8/15	27/8/15	95	9	R. abdominal wall.	Removal of bullet.	R	—
253	21/10/14	6/9/15	16/9/15	330	10	R. thigh, fractured femur.	Abscess opened.	R	—
260	25/9/15	4/10/15	12/10/15	17	8	L. hand.	Amputation.	—	D
281	8/10/15	18/10/15	26/10/15	18	8	L. shoulder.	Shrapnel removed.	R	—
282	8/8/15	20/10/15	23/10/15	76	3	R. buttock, r. abdom. wall.	Fell; wound reopened.	R	—
292	6/7/15	27/10/15	7/11/15	124	11	Appendicitis in France.	Opened up again.	—	D
325	14/2/16	2/5/16	8/5/16	83	6	R. radius.	Plating.	—	D
335	27/1/16	28/5/16	7/6/16	131	12	R. tibia.	Operation on bone.	R	—
344	10/6/16	26/6/16	9/7/16	29	13	R. clavicle.	Removed bullet.	—	D
396	1/4/16	13/7/16	20/7/16	110	7	Ankle.	Amputation.	R	—
411	1/7/16	22/7/16	23/7/16	22	1	R. shoulder and back.	Shrapnel removed.	R	—

ON OPERATIVE INTERFERENCE AFTER TETANUS SYMPTOMS HAVE APPEARED.

There is a good deal of difference of opinion as to whether a wound should be actively interfered with after the onset of tetanic symptoms.

TABLE II.

No. of case.	Date of tetanus.	Date of operation.	Days before operation.	Nature of wound.	Nature of operation.	Recovered.	Died.
50	22/9/14	23/9/14	1	L. elbow, l. buttock.	Wound opened up	—	D
54	10/11/14	14/11/14	4	Fracture of r. tibia.	Amputation.	R	—
70	23/10/14	23/10/14	0	Finger, fracture.	,,	R	—
73	21/9/14	21/9/14	0	Lacerated wound, l. ankle.	Wound opened up	R	—
74	26/9/14	26/9/14	0	Palm of hand, fracture.	Amputation.	—	D
77	28/10/14	28/10/14	0	Comp. fracture, l. tibia and fibula.	,,	—	D
85	8/10/14	11/10/14	3	L. upper arm.	Wound opened up	—	D
147	29/11/14	29/11/14	0	Palm of hand.	Amputation.	R	—
163	9/1/15	9/1/15	0	L. thumb, fracture.	,,	R	—
193	3/10/14	4/10/14	1	L. foot, fracture.	,,	R	—
230	18/6/15	18/6/15	0	Comp. fracture l. leg.	,,	—	D
216	30/5/15	30/5/15	0	Shell wound r. arm.	Bullet removed.	—	D
257	3/10/15	4/10/15	1	L. hand and calf.	Amputation.	—	D
258	1/10/15	2/10/15	1	L. hand.	,,	—	D
290	13/10/15	3/11/15	21	Comp. fracture, l. humerus.	,,	—	D
390	14/7/16	14/7/16	0	R. thigh.	Bullet and cloth removed.	R	—
401	22/7/16	22/7/16	0	Lacerated wound, suprapubic.	Wound opened up	—	D
422	22/7/16	24/7/16	2	Comp. fracture, humerus.	Amputation.	R	—
423	14/7/16	14/7/16	0	Lacerated wound, r. shoulder.	Bullet, &c., removed.	R	—
440	29/6/16	29/6/16	0	Multiple shell wounds.	Casing of bullet removed.	R	—
284	17/10/15	21/10/15	4	R. leg.	Amputation.	R	—

It seems under the circumstances to be most natural and rational thoroughly to open out and clean up the wound, and so remove the *fons et origo mali*. On the other hand, the tetanus toxin in the wound may only be leaking very slowly into the nerves, and the operation may open up a large and new absorbent surface. On this account there are many surgeons who deprecate interference at this time, contenting themselves with washing out the wound as thoroughly as possible and waiting until the tetanic symptoms subside before proceeding to more heroic measures.

On the whole the evidence seems to be in favour of waiting until the tetanus has been got under control, and the blood and tissues are flooded with antitoxin before undertaking any drastic interference with the wound.

Among 195 cases under consideration there have been 21 in which such an operation has been performed, and these are set down in Table II. There are only 21 cases reported, and of these 11 recovered and 10 died, a mortality of 47·6 per cent. It is evident, therefore, that no answer to this question can be gained from these few examples.

TREATMENT OF TETANUS BY ANTITETANIC SERUM.

A. *Preventive Treatment.*

Among the 195 cases, 77 are noted as having been treated with antitetanic serum before the onset of symptoms; all these were inoculated overseas. Not a single case is reported as having received a prophylactic injection of antitoxin in any home hospital.

Although only 77 are noted in the tetanus reports as receiving a primary prophylactic injection in France, it is probable that almost every case received it; at least, so it is stated by various medical officers from the front. Of these 77, 44 recovered and 33 died, giving a mortality of 42 8 per cent. Of the remaining 118, of which there is no record of prophylactic treatment, 56 recovered and 62 died: 52·5 per cent.

TABLE III.

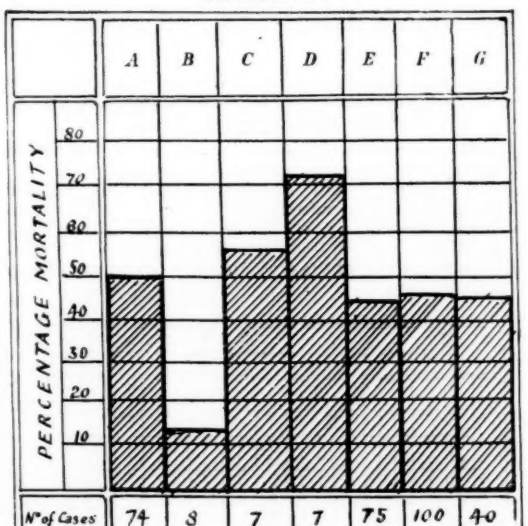
	Recovered.	Died.	Per cent.
54 cases inoculated on day of wound	31	23	42·6
8 ,, ,, one day after wound ...	4	4	50·0
3 ,, ,, two days after wound...	3	0	0·0
1 ,, ,, three ,, ,, ...	1	0	0 0
2 ,, ,, five ,, ,, ...	1	1	50·0

9 cases unaccounted for.

Of 50 cases inoculated on day of wound, the 29 cases which recovered had an average incubation period of 37 8 days. Of the 21 fatal cases the average incubation was 33 days.

Of 67 cases inoculated within 5 days of having been wounded, the 38 cases which recovered had an average incubation period of 37·7 days; the 29 which died had an average incubation period of 28 days.

DIAGRAM III.



B. *Curative Treatment.*

Out of the total of 195 cases the number treated with antitetanic serum after the onset of symptoms was 175 (90 per cent.). Twenty cases did not receive curative treatment with antitetanic serum in England. Of these 6 recovered

and 14 died; mortality, 70 per cent. Of the 175 cases which received serum treatment 92 recovered and 83 died; mortality, 47·4 per cent.

	Per cent.
Of the 175 cases, 74 were treated by subcutaneous injections alone (Diagram III. *A*); 37 recovered, 37 died; mortality ...	50·0
Of the 175 cases, 8 were treated by intramuscular injections alone (Diagram III. *B*); 7 recovered, 1 died; mortality	12·5
Of the 175 cases, 7 were treated by intravenous injections alone (Diagram III. *C*); 3 recovered, 4 died; mortality	57·0
Of the 175 cases, 7 were treated by intrathecal injections alone (Diagram III. *D*); 2 recovered, 5 died; mortality	71·4
Of the 175 cases there were 75 cases which included intrathecal injections (Diagram III. *E*); 40 recovered, 35 died; mortality	46·7
Of the 175 cases there were 100 cases which did not receive intrathecal injections (Diagram III. *F*); 52 recovered, 48 died; mortality	48·0
Of the 175 cases there were 40 cases which included intravenous injections (Diagram III. *G*); 21 recovered, 19 died; mortality	47·4

It would appear from Diagram III., which represents this graphically, that no advantage in favour of intrathecal injections emerges from these figures as seemed to be the case in the previous year.

IS THERE ANY OTHER EVIDENCE TO BE FOUND IN THESE REPORTS THAT THE INTRATHECAL ROUTE HAS ANY ADVANTAGE OVER THE OTHER METHODS OF INJECTION?

Treatment Beginning on the Day of the Onset of the Disease.

	Per cent.
During the year 1915–16 95 cases were treated with antitetanic serum on the day the symptoms declared themselves. 45 recovered, 50 died; mortality	52
Out of the 95 cases the following received antitoxin, but not intrathecally, on the day of the disease. 77 cases; 33 recovered, 44 died; mortality	57
Out of the 95 cases the following received antitoxin intrathecally on the day of the onset of the disease. 18 cases; 12 recovered, 6 died; mortality	33

Treatment Beginning on the Day Following the Onset of Disease.

The following cases received antitoxin, *but not intrathecally*, one day after the onset of the disease. 24 cases; 13 recovered, 11 died; mortality	46
The following cases received antitoxin *intrathecally* one day after the onset of the disease. 10 cases; 6 recovered, 4 died; mortality	40

Treatment Beginning Two Days After the Onset of the Disease.

The following cases received antitoxin, *but not intrathecally*, two days after the onset of the disease. 12 cases; 7 recovered, 5 died; mortality	42
The following cases received antitoxin *intrathecally* two days after the onset of the disease. 6 cases; 4 recovered, 2 died; mortality	33

There is a difference of 24 per cent. in favour of the intrathecal method when the treatment was begun on the day of the onset of the disease; a difference of 6 per cent. when the treatment was begun on the day after the onset of the disease; and a difference of 9 per cent. when the treatment was begun on the second day after the onset.

THE INFLUENCE OF DOSAGE ON THE CURATIVE ACTION OF ANTITETANIC SERUM.

(a) *The Total Quantity of Antitoxin Given during the Attack.*

	Per cent.
Out of the 175 cases, 4 received 1000 units or under; 1 recovered, 3 died; mortality	75
Out of the 175 cases, 38 received 1001 to 5000 units; 19 recovered, 19 died; mortality	50
Out of the 175 cases, 27 received 5001 to 10,000 units; 13 recovered, 14 died; mortality	52
Out of the 175 cases, 20 received 10,001 to 15,000 units; 8 recovered, 12 died; mortality	60
Out of the 175 cases, 19 received 15,001 to 20,000 units; 6 recovered, 13 died; mortality	68
Out of the 175 cases, 25 received 20,001 to 30,000 units; 15 recovered, 10 died; mortality	40
Out of the 175 cases, 8 received 30,001 to 40,000 units; 6 recovered, 2 died; mortality	25
Out of the 175 cases, 11 received 40,001 to 60,000 units; 6 recovered, 5 died; mortality	45
Out of the 175 cases, 12 received 60,0001 to 100,000 units; 9 recovered; 3 died; mortality	25
Out of the 175 cases, 11 received 100,001 to 285,000 units; 10 recovered, 1 died; mortality	9

(b) *The Daily Quantity of Antitoxin Given.*

Out of the 175 cases, 5 received 1000 or under; 2 recovered, 3 died; mortality	60
Out of the 175 cases, 99 received 1001 to 5000 units; 52 recovered, 47 died; mortality	47
Out of the 175 cases, 38 received 5001 to 10,000 units; 22 recovered, 15 died; mortality	45
Out of the 175 cases, 9 received 10,001 to 15,000 units; 5 recovered, 4 died; mortality	44
Out of the 175 cases, 11 received 15,001 to 20,000 units; 5 recovered, 6 died; mortality	54
Out of the 175 cases, 8 received 20,001 to 30,000 units; 4 recovered, 4 died; mortality	50
Out of the 175 cases, 2 received 30,001 to 40,000 units; 1 recovered, 1 died; mortality	50
Out of the 175 cases, 2 received 40,001 to 60,000 units; 1 recovered, 1 died; mortality	50

On studying these figures it must be confessed that no satisfactory deduction as to the influence of dosage can be made from them. Except in the second and third series the numbers are too small.

To conclude this section on the curative value of antitoxin it is apparent that little or no addition to our knowledge can be gained from the figures taken from these 1915–16 reports. It is true that the mortality of the 20 untreated cases is 70 per cent., whereas that of the 175 treated cases is 47·4 per cent., but the number of the untreated cases is small.

The matter must, therefore, be left in the same unsatisfactory position as last year when it was stated "the main conclusions to be drawn from a study of these cases of tetanus treated therapeutically by antitetanic serum is that it seems to be highly probable that the serum has little or no effect on the course of the disease." But it must be borne in mind that the number of cases under consideration is small, that the greatest variety in the modes of treatment obtains, and that also the greatest variety is found in the mildness or gravity of the cases themselves. If during the next year some uniform treatment was adopted, such as that recommended by the Tetanus Committee in their Memorandum, it is possible that some light might be thrown on this extremely obscure question of serum therapy.

All evidence goes to show that antitoxin is the more effective the earlier in the disease it is given. This is proved in diphtheria, and is also probably true for tetanus. In order to give the antitoxin a chance, therefore, early treatment should be striven for, and if this were done and the antitoxin applied thoroughly, one would not despair of reducing the mortality to, say, 20 per cent. instead of 50 per cent. at which it stands for the past year.

OTHER THERAPEUTIC REMEDIES.

1 *Carbolic Acid Injections.*

During the year 1915–16, 22 cases were treated by this drug. 7 recovered, 15 died: mortality, 68 per cent. In Table IV. the single injections and daily quantities are expressed in grains of carbolic acid. The cases are arranged according to the amount of carbolic acid given per diem, from 0·54 grain in Case 288 to 35 grains daily in Case 270.

TABLE IV.

No. of case.	Single dose in grains.	Quantity per diem in grains.	Total quantity injected.	Recovered.	Died.
288	0·27	0·54	1·08 gr. in 2 days.	—	D.
259	1·00	1·00	1·00 gr. in 1 day.	—	D.
337	0·68	1·36	1·36 gr. in 1 day.	—	D.
258	0·23	3·42	17·10 gr. in 5 days.	—	D.
398	1·00	4·00	?	R.	—
241	0·68	4·42	8·84 gr. in 2 days.	—	D.
233	0·82	4·92	29·5 gr. in 6 days.	—	D.
321	1·64	4·92	?	—	D.
423	0·45	5·20	25·90 gr. in 9 days.	R.	—
385	0·45	5·40	16·20 gr. in 3 days.	R.	—
384	0·91	7·28	?	R.	—
344	0·68	8·16	?	—	D.
355	1·10	10·90	10·90 gr. in 10 hours.	—	D.
390	0·91	10·92	?	R.	—
333	?	15·00	?	R.	—
249	7·25	16·31	65·25 gr. in 4 days.	—	D.
395	1·36	16·32	293·00 gr. in 18 days.	R.	—
270	4·37	35·00	43·00 gr. in 1¼ days.	—	D.
292	1·36	?	?	—	D.
236	?	?	?	—	D.
326	?	?	?	—	D.
426	?	?	?	—	D.

2. *Magnesium Sulphate.*

During the past year 18 cases have been treated by this drug, 6 by subcutaneous injection, 1 intravenously, and 8 intrathecally. In 3 the route is not stated. Of these 18 cases, 4 recovered and 14 died; mortality, 78 per cent.

CONCLUSIONS.

1. In the 195 cases of tetanus under review the mortality was 49·2 per cent.

2. Cases with a short incubation were more fatal than those with a longer incubation.

3. The greatest number of cases occurred on the eleventh day after the wound.

4. There are no allusions to the use of antitetanic serum as a prophylactic in home military hospitals.

5. In regard to the therapeutic effect of antitetanic serum the evidence as collected from the 1915–16 reports is not conclusive.

6. In the cases under consideration the advantage of the intrathecal route over the subcutaneous or other routes is also not conclusive.

7. There is no evidence that any benefit accrued to the cases treated by carbolic acid or magnesium sulphate injections.

8. With our present knowledge the treatment of a case of tetanus might be as follows:—

(*a*) Place in a quiet, darkened room under the care of a sympathetic and capable nurse. "Rest, sleep, and food" are looked upon as the first essentials of treatment.

(*b*) If thorough surgical treatment is carried out on wounds from the beginning, so as not to allow the presence of necrotic tissues or foreign bodies, the number of cases of tetanus should sensibly diminish, if not altogether disappear. But if a case does occur then the wound should not be actively interfered with until the tetanic symptoms have subsided.

(*c*) The intrathecal injection of large doses of antitoxin, of high potency if available, should be begun at once, and supplemented by intramuscular and subcutaneous injections.

(*d*) In addition, if necessary, the patient should receive sedatives, of which morphia in ¼-grain doses and administered every four hours is perhaps the most suitable. Chloral, chloretone, and other sedatives are also given by the mouth or rectum.

Some Practical Observations ON THE INJURIES OF WAR.

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PRELIMINARY OBSERVATIONS.

IT may seem that so much has lately been written on the complicated and septic wounds of the present war that observations regarding them are open to the charge of vain repetition. Nevertheless, individual experience, if accurately related, and conclusions drawn from personal observation, from actual practice, may not be devoid of value for the consideration and guidance of others who have not the advantage of extensive hospital experience or who may be taking charge of these cases for the first time. I have now had sufficient practice in these injuries to venture upon the relation of some brief observations regarding them.

The Use of Antiseptics.

At the outset I express my obligations to the long and laborious articles which have lately appeared from time to time in the medical press. Some of these are very involved and difficult to understand. But when carefully studied and the factor of personal controversy eliminated, there seems to be a consensus of opinion that there is no known antiseptic which certainly has the power of destroying organisms in septic wounds, either at the time of their infliction or afterwards. That if in sufficient chemical strength to destroy germs, the fluids must also harm the tissues of the patient. A perfect antiseptic is desirable, but yet to be found. Also that wounds inflicted by penetrating missiles are so devious and intricate, so often blocked by muscle and the like, that antiseptic agents cannot be brought into contact with all the pockets and recesses of the wound, even if their potency to destroy germs were admitted. The striking successes of antiseptic surgery are found in wounds made by the surgeon in non-infected tissues. When I left London in 1905 it was exceptional for any case to "go wrong" under the old principles of antiseptic technique. In the Waterloo Road Hospital, then an old and not too sanitary building, 72 major operations were done consecutively by myself, with little fever and no sepsis or suppuration. I made a point, for several years, of following the practice of other hospitals than my own. I found the results generally excellent. But hardly two surgeons used the same agent, and each was convinced of the omnipotence of his own methods, and somewhat contemptuous of those who differed from him. The various applications used now, and the usually satisfactory termination of septic wounds, raise a strong feeling that the reparative processes of the patient, I mean exudation of serum, of leucocytes, and organisation of plastic lymph, may have more to do with the result than the actual application used. And it is upon the evidence that these processes are favoured and accelerated by saline fluids that the advocacy of the use of these fluids depends. In this connexion it is interesting to note that the application of sea water has been for ages a vaunted remedy among country folk in wounds and tuberculous discharging sinuses.

In past years, nothing surprised me more than the excellent results obtained by the late Mr. Lawson Tait, who advocated thorough and plentiful flushing with hot water and strict cleanliness. From personal observation I can aver the result of his abdominal cases left nothing to be desired. After much uncertainty, I reverted to the early principles of Lister, and used carbolic acid throughout. I do not know that my results were inferior to those of other surgeons. Although it is stated on experimental evidence that the use of antiseptics may be actually prejudicial to repair in septic wounds, I certainly have seen no clinical evidence that this is the case. I still prefer to employ them, and their deodorising influence is not entirely to be ignored. The reflection that they must be prejudicial rather than favourable to the growth of organisms, seems a fair one. The solution of hypochlorous acid was early introduced at the hospital I assist at in Exeter by Dr. Samways, who has the care and after-treatment of many of the cases operated upon by myself. It seems both efficient and cheap. But I am unable to state that the results are better than would have been obtained by other agents, as carbolic acid, lysol, or the solutions of mercury. Mr. Dyball, the commanding officer, tells me he is unable to decide that any one solution does better than another, in his cases. Still, I do not think the offensive and sloughing wounds would have done so well, had only hot water, or salines, been employed.

General Remarks on Treatment.

If the life and proliferation of organisms are prejudicially affected in even a small degree by antiseptic fluids, there is a reason for using them. I can assert with some degree of confidence, however, that the diminution of quantity of septic organisms left in a wound, and especially of the media in which they flourish, is of paramount importance. I feel sure the leading principle of practice in these complicated infected wounds is the mechanical removal of micro-organisms, and the insurance of a free exit of serum, blood clot, foreign bodies, as pieces of clothing, and portions of disintegrated tissue. I cannot but express my opinion, with all deference, that the "sealing up" of the orifices of these wounds with any material, however powerful as an antiseptic, is an error, and may be compared in my provincial experience to a gardener placing a clod of turf on the orifice of a wasps' nest.

On the contrary, the wound, if needful, should be enlarged, and counter openings made in all dependent pockets and recesses. Large tubes should be inserted and the wounds powerfully flushed. I regard the actual agent used for flushing as of far less importance than the mechanical removal of the putrid discharge of all the "media" in which organisms flourish. The more perfectly this is done the less the patient will suffer from sepsis. This much is certain. The syringes used for this purpose are often too small and inefficient, and if an irrigator be used the receptacle should be well raised and the nozzle capacious to ensure a strong stream of the cleansing fluid. Proper irrigation and cleansing of septic wounds is the keynote to their successful treatment, and not so much the chemical action of the fluids employed. This is not to be ignored, but is of secondary importance.

It is convenient here to draw attention prominently to the great and important subject of the resisting power of the tissues and of the patient in septic wounds. The term "physiological resistance" has been well used by a recent

authority, and it well expresses what is meant, though it is exceedingly difficult to discuss and describe a matter ill understood, but of vast practical importance. It is easy to miss the obvious, and I feel sure this aspect of the question has not received the thought and attention it deserves. The extraordinarily rapid healing of bad wounds in animals is proverbial. Nothing is more striking also than the quick healing of wounds in those whose lives approximate to those of the animal, who are constantly exposed to air and sun, who take little or no alcohol, and live upon simple and nutritious food. The physical development of such individuals is manifest, and if added to all this be youth, there is scarcely anything that will destroy such persons, except the worst injuries in vital parts. In such individuals reparative processes, exudations of lymph and leucocytes, are correspondingly active, and in striking contrast to the healing power of anæmic and alcoholic inhabitants of large cities. I consequently maintain that exposure to air and sun, near the sea-coast or on moorland, is of the first importance, and at least as worthy the attention of surgeons as the use of any particular chemical lotion. I am aware that this opinion cannot be generally shared by responsible authorities, or we should have seen far more wounded treated in open-air hut hospitals than in buildings in large cities. The influence of open-air treatment is as marked in septic wounds as in tuberculous lesions, and the separation of deeply-seated necrosed bone is greatly facilitated. A nutritious diet is also essential, and I am old-fashioned enough to believe in the efficacy of a daily allowance of good porter, or, in the more fortunate, of port wine. The administration of decoctions of bark of quinine, or, in the very anæmic, of the milder non-constipating preparations of iron, are not without use. Both these remedies were in favour among the surgeons of a past generation.

Among the many advantages this treatment offers is not only the promotion of rapid healing, but the possibility of convalescence occurring at the original hospital, the collecting of an indefinite number of wounded together, without overcrowding, and under military supervision, and the far greater economy.

If clinical proofs were needed of the value of mechanical removal of discharges, such are to be found in the results obtained by the water bath or continuous irrigation. This should be a standard treatment for crushed and septic wounds, especially of the extremities, and here I believe I shall meet with but few dissentients. The beneficial results obtained from the warm-water bath are so manifest it is not needful to emphasise the value of the treatment.

Dressings.—Vaccine Treatment.

The question of external dressings may next receive attention. It is hard to believe that sufficient virtue exists in any external dressing as to affect for good or bad the recesses of a septic wound separated from the dressings by skin, fascia, and, perhaps, several inches of soft parts. There is here no question of infection through the atmosphere. The harm is already done. A kind of fetish belief that an external dressing can influence such conditions still lingers in our minds, and this leads to the extraordinary number of applications used, and the highly flavoured stories of their "healing powers" in the press and amongst the laity. What we should aim at is an application which will absorb the discharge and deodorise it, which is cheap, and which can constantly be removed and burned as it becomes foul and saturated. I think the constant removal of saturated dressings is of very great importance, and the bandages should never be applied tightly to impede the flow of pus, as is too often the case. In private practice I always used medicated wools, especially boric acid wool, and mercuric wools. But it is impossible to use these materials in bulk in this great war on account of expense. My favourite material is the antique picked oakum, and pads of pine-wood sawdust are deodorising, absorbent, and very cheap. At present sphagnum moss is largely in fashion. I venture to express my belief that none of these materials exercise any influence on the actual healing of the wound, and they are only useful in absorbing discharges. It is over 30 years ago since Sir George Humphry advocated the treatment of wounds by leaving them entirely exposed to the air without any dressings at all. But the discharge was constantly removed and washed away. This was in the early days when antiseptic surgery was in its infancy. I saw such cases as excisions of the knee, compound fractures, and the wounds made after removal of tumours treated with success in this way; the results were at least better than followed from leaving discharging wounds for many hours bathed in offensive dressings sodden with pus. The constant removal of the discharge was especially insisted upon. In a number of cases of lateral lithotomy in which this surgeon had remarkable, I believe unbroken, success, a series of sponges were constantly used, wrung out in water, and again applied to the wound. Like many other things, this practice of exposure of wounds has been lately renewed, but Humphry was the originator of it. In cases of empyema I much prefer that no bandage be employed, the patient lying upon a pad of loosely arranged medicated wool or other absorbent wool, which is constantly removed by the nurse and replaced as needful. Too often these cases are left in "a bath" of pus beneath the bandages, the condition being both deleterious and offensive.

In superficial granulating wounds, on the contrary, when the dressing is in actual contact with an extensive surface, external applications may be productive of an influence for good or harm, not infrequently the latter. In the dressing of such wounds it is important to save pain and to prevent the removal of epidermic cells from the margins. Therefore it is important to use no material which sticks to the wound. Attention has recently been drawn to the use of thin celluloid for this purpose at St. Mary's Hospital. I have for years employed the old-fashioned "green protective" of Lister for this purpose, and I know of nothing better. The material can be cleaned and soaked in whatever antiseptic application the surgeon has most confidence in. In dressing large granulating wounds, it must be remembered the absorbent powers of the surface are very great, and the application must be of weak chemical strength. I believe warm salines to be very good for this purpose. But powerful chemicals may do harm, as was too often exemplified in the period of the iodoform craze, when illness and even death occurred from this very reason. Skin-grafting should be energetically employed in superficial wounds, and it is sometimes useful to dissect flaps from the margin and lay them on the wound, securing them by catgut sutures. This gives a greatly increased area from which the epidermis can grow over the surface.

I unfortunately had to leave London too soon to form a personal estimate of the value of vaccine treatment of septic wounds and have only been able to understand it by a study of the work of others. The opinions are very conflicting, but one thing is clear. It is useless to employ this method if discharge is pent up, if imperfect drainage exists, or an unsuspected abscess is present, deeply seated, and undetected. I have found that the persistence of fever and illness in the patients of the present war are always due to imperfect drainage and impeded exit of foul discharge; and when this is put right the temperature falls. This has been my experience in a large number of cases. But I should not hesitate to employ the aid of the bacteriologist in instances where septic symptoms and fever persisted, although perfect drainage, flushing, and elimination of all discharge were certainly effected. It would be of interest to know the opinion of others on what is obviously a very important practical point.

SUPERFICIAL WOUNDS.

The wounds inflicted in the present war are so diverse, extensive, and complicated that it is difficult to classify them. A large number are superficial, the missile tearing away skin, muscle, and fascia, with a small wound of entry and a large ragged wound of exit. The first question to decide is the necessity or otherwise of laying the whole wound open. This is advised by some surgeons as a routine practice. I think it well to avoid doing this if possible. These wounds when swollen, black, and sloughing, look very formidable, but after a few weeks of careful dressing they assume a far more favourable aspect. The undermined areas, when once granulating, will often heal together. And if any tracks have to be laid open, I think this is best done later on, when the surgeon is able to estimate how far healing is able to progress without operating. In all these wounds careful dressing, drainage, and great cleanliness are essential. And though the wounds must heal from the bottom the dresser must be careful the wounds are not really kept open by undue "stuffing" with gauze or lint. Any suturing of these wounds is not advisable, but healthy granulating surfaces may

sometimes be approximated by sutures with plates of lead or the old-fashioned quill suture with advantage. In all wounds, penetrating or superficial, the probe should never be used unless for a definite purpose of information. Its use constantly, and as a matter of routine, is much to be deprecated.

PENETRATING WOUNDS.

Penetrating wounds are divided into those which pass clean through the trunk or limbs and those which lodge in the tissues at a less or greater depth.

The nature and severity of these injuries will, of course, vary as to locality and the nature of the missile. The sharp-nosed bullet at high velocity may pass through a limb, or even the trunk, doing but little harm. A shrapnel bullet or piece of shell, the latter especially, may inflict the most serious injuries, smashing the bones beyond hope of repair, or tearing away the soft tissues, vessels, and nerves, and involving the parts struck in common ruin. A large number of wounds which have come under notice are those where a bullet passes straight through a limb. Here, when the bones and main vessels are intact, nothing but rest and strict cleanliness is needful. The contracting scar of these wounds often impedes the action of the muscles, especially in the calf of the leg, and massage and movements must be carefully instituted. It is wonderful how the main vessels escape injury, even when the bullet strikes directly over their course. A careful investigation of the condition of the main vessels should, however, always be made in these cases. They may be merely "notched," and then the bleeding below a dense fascia is very insidious. The pulse below may be but little affected, and the most reliable symptom is a loud bruit, which is generally heard over the seat of injury. Often both artery and vein are injured, and one of the various kinds of arterio-venous aneurysm ensues if the case be not promptly dealt with. The use of the stethoscope is very important in these injuries. As a rule it is the best practice to face these formidable lesions of the main vessels at once. Treatment by pressure is very unsatisfactory, and though it may control bleeding from the orifice of the wound, the hæmorrhage goes on insidiously into the tissues of the limb, and much enhances the difficulty of subsequent operation, and increases the risk of subsequent gangrene. The circulation above, or on the cardiac side, should be controlled by the elastic cord. If this is impossible, it is safer to place a temporary ligature on the main vessel above than to trust to the fingers of an assistant. Digital pressure soon tires, and these operations may be very difficult and prolonged. A good method is to place a probe or sinus forceps beneath the vessel to be controlled, and pass over it an ordinary elastic letter-band. This, when removed, will be found not to have harmed or in any way injured the main vessel or its coats. A very free incision should be made, and this is the main secret of dealing quickly with these cases, which, when associated with much blood clot and inflammatory swelling, may be of extreme difficulty. The muscles are drawn aside with powerful retractors, and then the lesion of the vessels is usually found and can be remedied. I have adhered to the use of the ligature above and below the lesion in the vessels, for I have had no experience of closure of wounds in them with fine sutures. This operation, if it could be done safely, would be of especial value, but it sounds risky. The fear of gangrene in these cases is too well founded, but it is extraordinary how in these young and vigorous patients the circulation is maintained. We have recently had cases where the popliteal artery and vein have been tied and yet the limb maintained its nutrition. In the upper limb the risk of gangrene is comparatively small.

I have seen several cases where the main vessel has been torn across by a missile and has become spontaneously occluded, no subsequent bleeding having occurred. I have also seen several instances of occlusion of the main vessels after a severe crush of a limb, probably by thrombosis. Expectant treatment is all that is needed in these cases.

Unfortunately, the main nerves are often "smashed" across by bullets and pieces of shell. Immediate operations on these, owing to the septic state of the parts, give poor results, and it is usually better to wait for some months until the parts have healed. Then the surgeon will be confronted with difficulties I will mention later on.

(To be continued.)

SIX CASES OF ŒSOPHAGECTASIA.[1]

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PROBABLY most museums of pathological anatomy contain specimens showing dilatation of the œsophagus which involves the greater part of the tube and is not due to the existence of a pouch. But though the condition is well known to the pathological anatomist, until recent years the clinician has been at a loss how to detect it, and has generally only discovered it at the post-mortem examination. The advent of the use of X rays and bismuth meals and of the œsophagoscope has rendered it possible for this condition to be demonstrated before death.

Dr. F. Parkes Weber is the first observer of recent years to publish a case of this kind which was completely diagnosed before death.[2] Dr. Arthur F. Hurst has more lately described a case discovered before death by means of X rays, and has used the term "achalasia of the cardia," preferring this term to that of "cardio-spasm."[3]

We have met with five cases, three of which were fatal, and we add a sixth which came under the care of Dr. Sidney Martin in 1892. With his permission we publish the notes of his case, because it presented similarly baffling symptoms at the bedside.

CASE 1.—The patient, aged 35, was admitted into University College Hospital under Dr. Martin's care on Sept. 17th, 1892, and died on Oct. 22nd in the same year. She was admitted because she had had attacks of great difficulty in breathing for about six weeks. Her story was that she had really been ailing for a little over two years, and her illness had begun whilst abroad with pain in the upper abdomen, accompanied by vomiting, which relieved the pain. There was no hæmatemesis, and she was treated, she said, for "congestion of the stomach." Similar attacks occurred periodically during the ensuing year; but in October, 1891, the pain became persistent, vomiting again giving her relief. These symptoms intensified until six weeks before admission, when a new symptom developed—namely, attacks of dyspnœa which came on night and day, especially at night and on lying down; the attacks would last about half an hour, and, as above stated, it was this symptom which caused her to seek admission. With regard to the pain and vomiting, the latter was lost altogether and the pain was much reduced if her diet consisted only of milk.

Physical examination.—The patient was a spare woman, and she showed marked inspiratory stridor on occasion, especially after exertion. There was frequent cough, sometimes "brassy" in character; the expectoration was mucoid and watery. The heart and lungs were found to be normal, and repeated examination of the larynx failed to show any abnormality. She had great difficulty in taking solid food; her sleep was disturbed by a cough, and whilst in hospital this grew worse; her temperature rose a little, and she developed dullness at the right base behind. During the night of Oct. 14th she had a very severe attack of dyspnœa, and stridor of an inspiratory type was again noticed. The use of amyl nitrite and of morphia failed to give relief, whereas chloroform was effective. She did not become blue in the attack. The cough persisted and the sputum became muco-purulent. On the evening of Oct. 20th the epigastric pain became very severe, and a return of the dyspnœa took place. The stridor was mainly inspiratory, but also expiratory. The patient became very livid, and chloroform, pushed to deep anæsthesia, gave no relief to her breathlessness. She then became unconscious after recovery from the chloroform anæsthesia, and remained so for 40 hours until her death; only on one or two brief occasions was there any slight return to consciousness; during this period the pulse failed occasionally, and the veins of the neck became very turgid. During the 40 hours there were many attacks of dyspnœa, one or two of which were very severe; in the intervals the breathing was quiet, and the patient's colour was good. Finally, the pulse failed, and

[1] A paper read before the Section of Medicine of the Royal Society of Medicine on Nov. 28th, 1916.
[2] Proc. Roy. Soc. Med., vol. vii., Clinical Section, May 8th, 1914, p. 147.
[3] Proc. Roy. Soc. Med., Clinical Section, Jan., 1915, p. 22.

death from exhaustion ensued. The vomiting *seemed* to be a true vomiting, and not a mere regurgitation of food, and took place some time after taking food. On one occasion only had it been noticed that food taken several hours before was returned unaltered. Nothing abnormal was found in the larynx on repeated examination. Vomiting was usually brought on by an attack of coughing.

Post-mortem examination.—The lungs appeared emphysematous. The right lung was adherent by old adhesions at the apex, the lower part showed recent adhesions, and there was a small pleural effusion at the right base; there were patches of broncho-pneumonia in the lower lobe. The left lung was congested in the lower lobe. The heart was normal, but a soft cystic swelling bulged into the back of the pericardial space. On raising the right lung a sausage-shaped tumour was seen lying between the spinal column behind and the trachea and pericardium in front. It bulged into the right chest, and proved to be the œsophagus greatly dilated; it was filled with undigested food, and no stricture could be made out. The finger could be passed through the cardiac opening of the stomach into the œsophagus, and no resistance was met with in doing this. The trachea showed no constriction, but a submucous extravasation of blood was seen on the posterior surface near the bifurcation; the cartilages appeared to be a little softened, as though from pressure. The brain, heart, kidneys, and liver were normal.

Report on the œsophagus by Mr. T. W. P. LAWRENCE.—An œsophagus measuring 24 cm. in length, with the cardiac end of the stomach. At the upper end the internal circumference measures 4·5 cm., at the cardia 5 cm. Between these points, involving the whole œsophagus, there is a fusiform dilatation, which reaches its maximum width at about an inch below the middle, where the internal circumference is 13 cm. The wall of the tube is slightly increased in thickness at the lower end (about 4 mm.) and becomes gradually somewhat thinner towards the upper part. In the main part of the dilatation the rugæ are smoothed out, but are still present at the upper and lower portions of the tube, and in the latter situation the mucous membrane is swollen or altered in appearance so as to resemble somewhat the mammillated mucous membrane of chronic gastritis, and in many places it shows with a lens a finely papillary surface. The epithelium in the most dilated part of the tube is irregularly thickened, and in places destroyed, leaving small areas of ulceration in which the muscular coat is laid bare. No ulcers or cicatrices are present in the lower part of the œsophagus or cardiac end of the stomach. The submucosa appears to be everywhere loose and free from induration. At the lower end of the specimen on its external aspect there is a small group of slightly enlarged lymphatic glands, one of which contains caseous foci; these are connected with the stomach rather than with the œsophagus, though at one spot they slightly overlap the extreme lower end of the latter.

Microscopical examination.—(*a*) Chronic catarrhal inflammation. This is most marked at the lower part of the œsophagus. The epithelium is thickened, shows a tendency to surface desquamation and the papillæ are increased in size, forming bead like projections above the general surface. There is some induration of the areolar layer between the epithelium and muscularis mucosæ, with leucocytic exudation. The submucous tissue and the areolar tissue between the circular and longitudinal muscle layers are also in places slightly indurated. In the smooth area of the more dilated part of the œsophagus these changes are less marked, and the papillary hypertrophy is absent. (*b*) Muscular hypertrophy.—Judging from the thickness of the circular muscle-fibres, this layer appears to be slightly hypertrophied in the lower half of the œsophagus. (*c*) Muscular atrophy.—Many of the bundles in the circular layer of muscle-fibres are very slender and obviously atrophic. This condition is fairly uniform in the more dilated part of the tube, but only occurs in localised patches at the other end. (*d*) Definite staining for fat with Scharlach R. and Sudan III. is not obtainable.

CASE 2.—The patient, aged 55, was admitted to University College Hospital on May 21st, 1914. He complained of the following symptoms: (*a*) general weakness for a month, much worse one week; (*b*) difficulty in keeping his food down, particularly solid food, on and off for 18 years—it had become much worse in the last six weeks, when his food had to be returned immediately after taking it; (*c*) pain in the chest on and off, not related to the actual taking of food, most marked during the preceding month, and much worse the last week; and (*d*) during the last two weeks he had developed shortness of breath and cough. His symptoms began 18 years previously, when after having had dinner he had a fit of coughing and fell down unconscious. He recovered and felt quite well, but three days later he found he could not swallow properly. He went to Guy's Hospital and was under the care of Mr. Charters Symonds. Thence he was sent to St. Bartholomew's Hospital, and remembered that he was "fed with a tube." He had had pneumonia at the age of 17, typhoid fever at the age of 23, and influenza and bronchitis at the age of 51. There was no history of syphilitic infection, nor was there any history of a similar sort of "dyspepsia" in his family. He was moderate in the consumption of alcohol and in the use of tobacco.

Physical examination.—On admission he was found to be wasted, was rather short of breath, had some pain in the upper abdomen which was bad enough to disturb his sleep very much, and he had some cough and brought up grey expectoration. He was tender in the upper part of the abdomen, to the left of the middle line. There were no abnormal physical signs in the heart; the blood pressure registered 94 to 116 mm., the pulse was regular, 100 to a minute, and the temperature was 99° F. The lungs were emphysematous and rhonchi were heard on both sides.

X ray examination by Mr. R. Higham Cooper (May 25th, 1914).—A bismuth emulsion appeared to pass straight into the stomach and there was no sign of an œsophageal pouch. The plate, however, showed a considerable increase in width of the shadow usually seen at the base of the heart.

An œsophageal bougie the size of the little finger was passed by Mr. Herbert Tilley without any difficulty, and *apparently* into the stomach, and the patient said he had felt "relieved by this, as if something had been pushed on." A rather small-bore œsophageal tube was then passed for 21 inches. This caused immediate discomfort and retching, and when withdrawn a piece of carrot, eaten 24 hours before and practically unaltered, was found in the eye of the tube. Œsophagoscopy showed a dilated œsophagus the walls of which were folded, presenting depressions and crevices which caused confusion when an attempt was made to pass a bougie through the œsophagoscope into the stomach. The attempt to do this failed entirely. Analysis of the vomited matter showed no *free* hydrochloric acid, but some lactic acid. The total acidity was 0·073 gramme HCl per cent.; the proteid HCl was 0·036 gramme per cent.; and the lactic acid 0·045 gramme per cent. There was a trace of albumose present, and there was only a small amount of digestive power (Dr. F. H. Teale). The vomit varied in amount from 1 ounce to as much as 38 ounces. Attempts were made by liquid dietary and rectal feeding to maintain the patient's strength, but he wasted rapidly and died on June 1st, 1914, in an attack of angina pectoris.

At the post-mortem examination the patient was found to have a dilated œsophagus and calcification of the coronary arteries; beyond this no other abnormality was found.

Report by Mr. LAWRENCE.—An œsophagus measuring 28 cm. in length, with the cardiac end of the stomach and the bifurcation of the trachea. From above down the œsophagus presents the following peculiarities: (*a*) For 6 cm., as far down as the bifurcation of the trachea, a slight cylindrical dilatation and marked hypertrophy; (*b*) for 17 cm. below the bifurcation a large fusiform dilatation with a maximum internal circumference of 16 cm. at a little below its middle: marked hypertrophy of the walls in the upper third of this part, with a maximum thickness of 6 mm. at its highest part, the wall gradually thinning to 2 mm. somewhat below the middle and again increasing at the lower end of the dilatation; (*c*) for 4 cm. below the fusiform dilatation a slight cylindrical dilatation, with marked hypertrophy (7 mm.); (*d*) the lowest 1·5 c.c. of the tube normal. The rugæ are smoothed out in the more dilated portion, and the mucous membrane shows patchy thickenings of the epithelium, which in places has become detached, leaving shallow circular and irregular ulcers. There are no ulcers or cicatrices in the lower part of the œsophagus or cardiac end of the stomach. No enlarged glands, induration, or other changes are present round the lower extremity of the œsophagus.

Microscopical examination.—(*a*) Chronic catarrhal inflammation. The epithelial layer is narrow generally, owing apparently to desquamation; in the most dilated portion the epithelium is absent in places. Between the rugæ at the lower end the papillæ are hypertrophied, forming small projections on the surface. The areolar tissue between the muscularis mucosæ and epithelium and the adjacent part of the mucous layer is infiltrated with leucocytes and is slightly indurated. In the lower part of the œsophagus there is some fibrosis of the layer of longitudinal muscle and of the areolar tissue between the two muscle layers. (*b*) There is marked hypertrophy of both muscle layers, except at the most dilated part of the œsophagus. (*c*) There is marked atrophy of the bundles of circular fibres in the region of greater dilatation.

The following deductions have been made by Mr. Lawrence on these two specimens. 1. That the inflammatory changes are simply due to irritation by retained food. 2. That the hypertrophy, even when it extends to the upper part of the tube, must be due to obstruction at or near the lower end. 3. That the atrophy is due to stretching of the walls owing to dilatation by food retention, and that it may be preceded by hypertrophy. 4. That in Dr. Martin's case there never was much hypertrophy, and that therefore hypertrophy is quite a secondary process in these cases; in fact, all the changes seem to be secondary.

CASE 3.—The patient, aged 50, had been anæmic as a young woman, and liable to faint. At the age of 30 years she hurt herself by swallowing a rather large fish-bone. She first noticed a trace of dyspepsia at the age of 33, when she began to observe that swallowing effervescing drinks like ginger-beer caused her great discomfort in the chest. Eleven years ago a definite pain developed behind the sternum, which was relieved by bringing up wind. Cold food, solid or liquid, always caused the greatest degree of this pain. Solid foods generally "seemed to stick" at the epigastrium and caused her to return the food, or, at any rate, if she made herself sick she was much relieved of the pain; butter and fat foods also seemed to increase this pain. The pain did not necessarily come on as the result of taking food; it was accompanied by a feeling of distension of the abdomen. During the night mouthfuls of food, not very acid, would be brought up, and sometimes be expelled through the nostrils. It was about this time that she first noticed shortness of breath after taking solid food, and relief came only by bringing back her food. When seen by one of us at this stage naturally some form of obstruction was feared. She did not, however, seek further advice for 18 months, and then, as she was well nourished and her symptoms had not intensified, as she had kept to a liquid or very light diet, a tentative diagnosis of dyspepsia was made. Her teeth were put in order and a stomachic mixture containing bismuth was prescribed; this latter apparently relieved the slight symptoms that persisted despite the light character of her diet. In the course of time she got tired of the diet, which consisted of milk, custards, bread-and-milk, and scrambled eggs, and came under the care of Dr. J. C. Williams, who was struck with the persistence of the symptom that food apparently "stuck in the chest," and suggested the use of a bismuth meal and X ray examination. This was carried out by Mr. Higham Cooper on Sept. 30th, 1914. He found that "On examination immediately after the meal no shadow of the stomach could be made out. All the bismuth meal appeared to be in the œsophagus, which showed enormous general dilatation, with a small process below and to the left evidently corresponding to the cardia. Half-an-hour after the meal small portions of opaque matter were seen ejected from the œsophagus at the end of each forced inspiration. One and a half hours after the meal was taken there was a mass with rounded lower border, visible below and to the left of the umbilicus, evidently representing the greater curvature of the stomach. Above this was a long spindle-shaped mass in the position occupied by the ejected particles mentioned in the previous examination. Four and a half hours after the meal was taken the shadows in the stomach had disappeared, but that in the œsophagus was practically unchanged. Further examination could not be made, as the patient became sick and faint. The condition appeared to be one of almost complete obstruction of the cardia with consequent dilatation of the œsophagus. On pressure being applied to the œsophagus by inspiratory movement, the fluid parts of the meal seemed to be squeezed through the cardiac orifice."

This patient is alive still, is very well nourished, and so long as she adheres to a dietary such as has been indicated above, she is free from all but the slightest symptoms. Owing to the absence of Mr. Cooper in France we are unable to reproduce his pictures, and Dr. Stanley Melville has radiographed her again, and reports as follows:—

Opaque porridge passed without difficulty as far as the lower end of the œsophagus. At this point further quantities of the meal were seen to collect above the constriction, the œsophagus dilating to accommodate the food. There was some tendency for the food to regurgitate, and what appeared to be reverse peristaltic waves were noted in the œsophagus. The appearance of the œsophagus at the conclusion of the meal bore the customary shape of cardio-spasm, the sharp "sickle-shaped" outline to the right of the cardiac shadow being well marked. In this case the usual thin line of food as it slowly passed the obstruction was not very evident, but small quantities of the meal were seen at intervals to enter the stomach.

CASE 4.—The patient, aged 24, came under the care of Dr. J. A. Belcher at the beginning of this year for cough and hæmoptysis, which he found were due to pulmonary tuberculosis. She had also noticed for the previous three years that when she took solid food it appeared to stick in her chest behind the breast-bone, and on occasions the food would come up apparently little altered. Liquid food did not cause any trouble. Sometimes the food brought up had been taken a day or so before. She had lost nearly 2 st. in weight in three years, and was short of breath, two symptoms, however, as easily attributable to her lung condition as to that of the œsophagus. With careful dieting the regurgitation of food became much less frequent, and if she ate slowly and thoroughly masticated her food she could retain fish, chicken, and even meat, though this was not always the case. It was distinctly noticed that sometimes she had a difficulty in retaining food, whereas at others on the same diet she had none. Dr. Stanley Melville carried out an X ray examination on March 17th, 1916, using a bismuth meal, and reports as follows: "The opaque meal, of the consistency of porridge, passed without delay or obstruction until the lower limit of the œsophagus was reached. At this point the food was arrested, further quantities of the meal accumulating at the expense of the œsophagus, which continued to dilate until a large mass, with a well-defined and characteristic curve to the right, was seen. This was distinguishable from the right border of the heart. After an interval of about ten minutes a thin, somewhat long, and sinuous streak was seen to be entering the stomach. There was very marked delay in the passage of the food into the stomach, and at the end of an hour only a portion of the meal had passed the constriction." On April 7th, 1916, the patient was again placed under X ray examination. Considerable improvement was observed in the transit of the bismuth meal, for at the end of 15 minutes the greater part of the bismuth had reached the stomach. Dr. Dundas Grant was able to carry out an œsophagoscopic examination, and to demonstrate the folds and recesses met with in the walls of what was evidently a dilated œsophagus.

The radiographic study of the two last cases was interesting in that, besides giving the true diagnosis, an interesting phenomenon was noticed when the patient took a deep breath. A pencil-like shadow of bismuth could be seen, indicating the narrow lower end of the œsophagus and the cardiac orifice of the stomach. This would remain unaltered for some time, and so far as a radioscopic examination was concerned no food was taken into the stomach, showing the obstruction was probably complete, even for such a weighty salt as the one of bismuth used. However, this obstruction could be overcome in both cases when the patient took a deep breath or coughed, for then a fainter shadow of the bismuth meal could be seen, indicating that some bismuth escaped on such occasions into the stomach. The obstruction was not absolute.

Through the courtesy of Dr. G. F. Darwall Smith and Dr. Arthur Latham we are able to publish the details of a case which came under the observation of one of us (A. W. W.) at the General Lying-in Hospital, York-road, S.E. The patient subsequently died at St. George's Hospital.

CASE 5.—The subject of this case, aged 33 years, the mother of three children, was admitted to hospital on Jan. 28th, 1915. She was 32 weeks pregnant. As she had frequent vomiting which could not be controlled, she was admitted as a case of "pernicious vomiting of pregnancy." The following points in the history of the case were elicited, part being obtained from the husband, because the patient herself had developed defective memory. It was found that she had never had any serious illness before, but that she had always to swallow slowly, and that the difficulty in getting the food down had for the last ten years been increased, so that even slow swallowing did not obviate it. During these ten years the food would occasionally be actually brought back, as if she had vomited it, and there was an accompanying sensation of nausea. This return of food, it was found on close inquiry, only followed immediately on the ingestion of food—that is to say, it did not occur during periods of fasting. In November, 1914, the patient had a very severe attack of coughing, which seemed to intensify the habit of bringing up her food after swallowing it, so much so that from this date until her admission to hospital it was a constant feature, and for four days before admission she had been quite unable to retain any food given by the mouth. The attack of coughing which began this phase of severe vomiting was not an isolated attack; she was liable to similar attacks, and even had had attacks of "asthma." When she swallowed food she noticed that it "seemed to stick" at a point referred to the lower end of the sternum.

The clinical study of this case belongs to the patient's stay under Dr. Darwall Smith's care at the General Lying-in Hospital and under Dr. Arthur Latham's care at St. George's Hospital. On admission to the former hospital she was found to have a distressed facial aspect, to be emaciated, was suffering from bronchitis, and was slightly deaf (the deafness having come on two days previously). The temperature was subnormal and the pulse-rate 120 per minute throughout her stay. No abnormality was found in the urine; the bowels were constipated. There were some scars on the right side of the neck, suggesting former glandular disease. Her nervous symptoms were such as to suggest neurasthenia. Various remedies were tried to check the vomiting, and the simplest of dietaries, consisting of albumin water or peptonised or citrated milk in small quantities, was adopted. Despite these efforts the food was rejected after being swallowed, very often being associated

with a bout of coughing or the bringing up of phlegm from the pharynx. Thinking over the case at the present date, it seems very possible that the very act of coughing or straining to bring up phlegm was responsible for the rejection of food, and also probable that the mere taking of the food provoked the cough.

On Feb. 6th, 1915—that is, nine days after admission—it was considered desirable that labour should be artificially induced, and this was carried out, the child being alive and weighing 77½ oz. The effect upon the vomiting was nil. The bronchitis rapidly got less under treatment with expectorants, &c. On the 22nd other symptoms were suddenly added. The deafness increased, the patient became dizzy, her memory was more impaired, and she became somewhat drowsy and delirious. Her sight began to fail, so that though she could appreciate light she was unable to recognise the faces of those about her. Ophthalmoscopic examination showed the presence of swelling of the discs and of retinal hæmorrhages. Nystagmus was present and marked. The knee-jerks could not be obtained. On the 25th an attempt was made to give relief by washing out the stomach. The stomach-tube passed in easily for a distance of 15 inches, measured from the incisor teeth, but it was impossible to pass it beyond that distance. The passage of the tube caused the patient to retch, and actually to eject food she had swallowed; the return of the food was not through the tube, but outside it, and escaped by the mouth and nostrils.

The patient's condition had become very grave, and it was considered desirable to transfer her to St. George's Hospital. This took place on Feb. 27th. When admitted she was not unconscious, but drowsy; she was wasted and pale, and had a little bronchitis; temperature 96° F., pulse 86, respiration 20. The pupils were found to be equal and they reacted to light; bilateral optic neuritis and flame-shaped retinal hæmorrhages were present. The knee-jerks were diminished and the calves were somewhat tender. A faint trace of albumin now appeared in the urine. The symptoms did not improve, and the patient died on Feb. 28th.

Post-mortem report by Dr. R. SALUSBURY TREVOR.—There were well-marked lordosis and old scars on the right side of the neck; the lungs were œdematous and collapsed at their bases; no indications of tuberculosis were seen, but there was much bronchitis. The heart weighed 6 oz., showing typical brown atrophy; the mitral valve was thickened, but competent; the aorta was small, but natural; there was no atheroma; small petechial hæmorrhages were found at the base of the right ventricle; the heart was not a "renal" heart. Nothing abnormal was found in the abdomen; the right kidney weighed 4 oz., and looked healthy, except for slight injection of the pelvic blood vessels; the left kidney weighed 2 oz.; it was much furrowed as if by old infarcts, but on section they had not that character, the cortex being normal in colour and plentiful.

Alimentary canal.—The only point of interest was the condition of the œsophagus, which showed fusiform dilatation from the cricoid cartilage to the cardia, suggesting a second stomach. The length was 10 inches, the maximum width 4½ inches; it contained about a pint of milk. The muscle was hypertrophied; the mucosa was ulcerated, small white epithelial islands being left in patches on an ulcerated surface. The stomach was small and catarrhal. The uterus was enlarged, and showed on the fundus and posterior walls a shaggy mass of placental tissue and clot; there was no endometritis. The brain showed no abnormality. Flame-shaped hæmorrhages and optic neuritis were demonstrated in the right fundus (confirmed microscopically). There was well-marked lordosis of the spine. The right vagus was dissected out and appeared to be normal.

Microscopical examination.—This showed marked inflammation of the epithelial lining of the œsophagus, and there was small-celled infiltration between the muscle fibres. The circular muscular coat was much fibrosed, and in portions of the œsophageal wall which corresponded to dark rings, seen by naked eye on the mucosa, the blood-vessels were greatly dilated, even producing an angiomatous appearance. The furrows noticed in the left kidney corresponded to areas of fibrosis which appeared to originate around the blood vessels.

CASE 6.—The patient, aged 51 years, was admitted to University College Hospital on May 29th, 1916, for pain after taking food, vomiting, and wasting. She had been quite well up to four years before admission, when she began to have attacks of chest pain and vomiting. The attacks when severe lasted about two weeks, but at the beginning each attack was followed by an interval of about two months, during which the patient was quite well. Gradually the attacks became much more frequent, and for the last five months the interval between the attacks was only about three weeks. The pain was felt behind the middle of the chest and in the upper part of the stomach; it was dull in character and came on about 20 minutes after a meal, particularly, but not exclusively, if the meal was a solid one. In another ten minutes vomiting would occur and then the pain was relieved: the site of the pain was constant and it did not radiate in any direction. Vomiting was a constant sequel to the pain; the vomited matter varied in quantity, in severe attacks amounting to over one pint; the vomiting was easy and the vomitted matter was free from blood. There was no flatulence. No history of any antecedent illness was obtained.

On admission the patient was found to be wasted (5 st. 8 lb. 11 oz.) and anæmic. She was somewhat tender on pressure in the epigastrium and the right rectus was somewhat rigid; on distending the stomach with carbon dioxide, it was found to be dropped, the lower margin reaching well below the umbilicus. She was given a fish diet on admission and seemed to be able to swallow it comfortably. Examination of the blood showed secondary anæmia. The examination of a test meal obtained on June 1st showed no free hydrochloric acid, although the total acidity was 0·219 gramme HCl per cent., consisting of protein hydrochloric acid 0·1095 per cent. and of lactic acid. Albumose was present and the digestive power was 30 per cent. (Dr. F. H. Teale). During her stay in the ward the patient had irregular fever, the temperature reaching on occasions as much as 102° F. Gradually pain and vomiting recurred, pulse and respiration ratio increased, and death took place on June 30th. A radioscopic study of a bismuth meal had been made, but, so far as could be seen, there was nothing pointing to delay in the passage of food along the stomach or intestine.

Report by Mr. LAWRENCE.—The œsophagus is 23·5 cm. in length. Its upper and cardiac orifices are of normal size; between these the tube is dilated throughout, its internal measurements being: At 2 c.c. below cricoid, 6 cm. circumference, at 5 c.c. 8 cm., at 11 c.c. 7·5 cm., and at 17 c.c. 13·5 cm. Longitudinal rugæ are generally absent from the mucous membrane, except at the upper parts; in the middle third there are scattered superficial erosions of small size; in the lower third the mucous membrane is thickened and opaque and the submucous tissue indurated. At the lower end, just above the cardia, is an oval ulcer about an inch in length which has part of its edge thickened, indurated, and overhanging. The muscle of the upper half of the œsophagus is not appreciably hypertrophied; in the lower half it is distinctly but slightly hypertrophied, except at and for a short distance above the cardiac orifice, where it is normal. The lower tracheal and bronchial glands are much enlarged and caseous, and are adherent to the œsophagus in places. Just above the level of the aorta a softened gland has perforated the œsophagus by an aperture measuring 2 mm., and lower down, at about the middle of the œsophagus, is a larger ulcerated aperture (about 1 cm. in diameter).

Remarks

1. It certainly looks as if this condition is not so very rare.

2. The symptomatology is very variable. Dr. Martin's patient (Case 1) died comatose, and had symptoms of dyspnœa which to a certain extent simulated asthma. The second patient (Case 2) also had shortness of breath, and, at any rate, at the beginning of his illness he had lost consciousness. Our third and fourth cases had some similitudes to cases of dyspepsia, one to ordinary acid flatulent dyspepsia, and the other to the dyspepsia of pulmonary tuberculosis. The fifth case simulated the toxic vomiting of pregnancy and also had a history of attacks of cough and of asthma; the sixth case simulated carcinoma of the stomach.

3. *Causation.*—Such cases in the past have been frequently referred to as examples of cardiospasm, by which is meant that quite independent of any organic lesion spasm occurs in the circular muscular fibres round the cardiac orifice of the stomach (cardiospasm). The obstruction caused by this phenomenon leads to a dilatation of the œsophagus and to a variable amount of hypertrophy of the muscle of the tube, food being retained in the œsophagus, irritating its walls, leading to chronic inflammation, and assisting in bringing about dilatation. This might be looked upon as a sort of *positive* cardiospasm, but unfortunately there is no proof histologically that there is hypertrophy of the muscles of the cardia such as might be expected if spasm had occurred. Dr. H. D. Rolleston[4] has advanced the view that possibly the action of the longitudinal fibres is at fault in that they do not help to dilate the cardia at the moment when the œsophagus is ready to propel food into the stomach, so that the circular fibres remain unopposed in action, producing, as it were, a *negative* cardiospasm. This view has been adopted very largely by Dr. Hurst, and he has introduced the term "achalasia of the cardia" to describe these cases, by which he means that

[4] Trans. Path. Soc., 1896, xlvii., 37.

when the peristaltic wave passing along the œsophagus reaches the cardia the relaxation which should occur then does not take place. He does not, however, commit himself to any explanation why this relaxation does not take place other than the one suggested by Dr. Rolleston, who, as we have seen, postulates faulty action of the longitudinal muscular fibres. Dr. F. Parkes Weber has put forward the ingenious suggestion that the neuro-muscular incoördination causing the faulty action of the longitudinal muscular fibres is akin to heart-block, and if this were the case it is easy to see that the block might not only be due to structural changes in the longitudinal muscle fibres, but to functional ones which would not reveal histological change. Accepting Dr. Rolleston's view, it is easy to see that we need not necessarily in each case find that the post-mortem evidence of muscular hypertrophy is identical. Dr. Hurst asserts that in none of these cases is hypertrophy of the cardiac sphincter observed after death; but hypertrophy of the œsophagus as a whole was met with in our third case except at the most dilated part, Mr. Lawrence finding hypertrophy in both muscle layers, and hypertrophy was seen in the fifth case by Dr. Salusbury Trevor. In our first case Mr Lawrence found slight hypertrophy of the circular muscular fibres in the lower half of the œsophagus. From these facts and from accounts given by others it is clear that in some cases hypertrophy is the rule; in others atrophy is the more marked feature, whereas in others again there is hypertrophy of one part of the muscle layer and atrophy of another. So far as a consideration of the literature shows, the œsophagus in these cases in no way simulates the condition of the stomach wall in the condition met with in hypertrophy of the pylorus in children, where *all* the muscular coat of the stomach is hypertrophied, and that near the pylorus especially.

A second theory may be advanced for the explanation of this condition. The researches of Braune and of von Goubaroff have shown that a valvular mechanism may exist at the cardia owing to the fact that when the œsophagus pierces the diaphragm it turns somewhat abruptly to the left side to open into the stomach, and it is probable that when the stomach is distended this bend is increased to such an extent as to obstruct the return of the contents of the stomach into the œsophagus. Obviously in such a condition there may be an obstruction to the passage of food from the œsophagus into the stomach. We think that this would provide an explanation for the occurrence of these cases, and we think that after childhood and early youth have passed this valvular obstruction may begin to be operative to the extent of producing symptoms for the first time in the individual's life. This is in harmony with the well-known clinical fact that visceroptosis does not, as a rule, produce symptoms until early adult life is reached. In every one of the cases which we have recorded the symptoms were absent in childhood and youth, and first were noticed at the ages of 33, 37, 33, 21, 23, and 47 years of age. Another fact which supports this theory is that occasionally during life the obstruction at the cardia *disappears*, the bismuth meal at one time meeting with obstruction, and at another time apparently passing on without any delay. This would explain why Mr. Higham Cooper found in Case 2 that the bismuth meal passed straight into the stomach, and yet at the post-mortem examination the classical condition of œsophagectasia was present. Further, in Case 4 Dr. Stanley Melville was able to prove by bismuth meals that there was obstruction on March 17th of this year, and that on April 7th it had quite passed away. The disappearance of the obstruction in this case is also confirmed by the fact that the patient can at the present time swallow solid food without difficulty, and has no symptoms whatever, although, as we have seen, she has persistent œsophagectasia. We feel, therefore, that there is a good deal to be said for this mechanical kinking at the cardia as an explanation of the development of the dilatation of the œsophagus in these cases—a theory which does away with the need to postulate "spasm" of circular or longitudinal muscular fibres for which it is impossible to find an explanation.

4. A few words remain to be said with regard to the symptomatology and other features of these cases.

(*a*) They must not be confused with cases of hysterical spasm of the œsophagus, in which neither food nor bougie can be passed. Hysterical manifestations were remarkable by their absence in our cases. It will be noted that five out of the six patients were women.

(*b*) That death may occur directly or indirectly about the age of 30, as in two of these cases, or may be postponed to later life, when death may occur from some quite independent cause—angina pectoris in our second case at the age of 55, and at a still more advanced age from pneumonia in Sir Samuel Wilks's case.[5]

(*c*) The outstanding features which should attract the physician's attention to these cases are as follow. When food does not seem to pass down the œsophagus properly it "sticks" behind the breast-bone, and may even cause pain in the *epigastrium; further, this "sticking" of food has been noticed frequently for a few or many years.* Relief is got by making the food come back, the patient securing this by tickling the fauces, attempting the act of vomiting, or by coughing, or by taking a deep breath. It will be found that the taking of a meal is followed by a feeling of difficulty of breathing, actually described by some patients as a feeling of stifling or of asthma, which is only relieved by again bringing up the food. In some cases a condition of persistent cough is provoked by taking a meal, as if the dilatation of the œsophagus irritated the lung and caused a reflex cough, the combination of cough with attacks of respiratory embarrassment provoking in these cases the opinion that the patient is suffering from true bronchial asthma. When studying the transit of a bismuth meal by means of X rays in cases of so-called "dyspepsia" it is very necessary to observe the shadow in the œsophagus as well as in the stomach and intestine; two at least of the above cases were missed from want of this precaution. These patients soon learn that the best way to obviate symptoms is to masticate very thoroughly and to spend some extra time over their meals, avoiding all "bolting." If this plan fails they generally betake themselves to liquid diet, which they can deal with comfortably.

(*d*) We are entirely at a loss to explain why Dr. Martin's patient died unconscious, having been in that condition for something like 40 hours; possibly it was due to acidosis. That it was not an exceptional feature is shown by the fact that our second patient lost consciousness at the onset of the malady, and our third patient was when a young woman liable to faint; this may, however, have been simply due to "anæmia," from which she suffered as a girl, for she has not had such a symptom during recent years. Our fifth patient also showed loss of consciousness, but there were other possible causes for it besides acidosis; there can be little doubt that her death was really due either to the toxic condition which produces pernicious vomiting in pregnancy, or it was due to uræmia, or to both.

(*e*) In conclusion we would call attention to the extreme ease, in the absence of a careful history, of confusing these cases with dyspepsia, and even with bronchitis and asthma, for in none of them, except the fourth one, did the patient volunteer the information which led us to suspect the condition which we have described.

We do not feel any hesitation in using the term "œsophagectasia" for these cases. The name describes what is an obvious fact, and does not commit us to any of the various theories which have been advanced and, as yet, not proved.

[5] Trans. Path. Soc., xvii., 138.

AN ACTION FOR MEDICAL FEES.—An action brought in the High Court and remitted to the county court at Newcastle was recently decided, in which Mr. S. Basham sued for the sum of £99 12s. for professional services rendered to a brigade of the Northumberland Fusiliers. The case for the plaintiff was that he undertook to attend the men who were being enlisted at the rate of 6s. per day per company of about 250 men. Later on, owing to developments by which the battalions raised by the defendant committee were transferred elsewhere for training, Mr. Basham found himself attending at a depôt to which men were sent who could not stand the rigors of training. Consequently he had under his care about 600 men, a very large proportion of whom were in need of professional attendance. In these circumstances it was arranged that he should be paid in advance of the rate originally arranged—that is to say, at 24*s.* per day for the number then at the depôt. It was suggested in defence of the action that while the medical man was asking for payment at the arranged rate, which was not disputed, the duty to contest the claim arose as payments of sums over £5 had to be sanctioned by a higher authority which had not been consulted. The judge found that there was no reason for going behind the arrangement, and gave judgment for the plaintiff.

THE PROBLEM OF THE TUBERCULOUS SOLDIER.

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THE discharge from the Army of many men suffering from tuberculosis makes it necessary, and even urgent, to consider the best means of dealing with them having regard to the man himself, his dependents, and the public health. At present the method is as follows. The man reports sick and is sent to a military hospital for the purpose of diagnosis and preliminary treatment. As soon as possible after the confirmation of the diagnosis he is discharged from the Army, although the exigencies of the service or of his case may have necessitated his spending some weeks in one or several military hospitals. Sufficient accommodation in civil tuberculosis institutions has been provided for the discharged soldier by the Insurance Commissioners, and the men are encouraged to apply for admission to such an institution immediately on discharge. As a fact, application is made before the actual discharge, so that the man may proceed direct without any interval from the military to the civil institution. Theoretically this would seem to be an entirely satisfactory method. In practice there are many difficulties.

I have been for the past year in charge of a civil hospital provided exclusively for soldiers and sailors suffering from tuberculosis. Nearly 300 men have been admitted in the course of the year, the vast majority of whom have been soldiers discharged from the Army and admitted to this institution by arrangement with the Insurance Commissioners and the Army authorities.

The problem of dealing with the tuberculous soldier is complicated by two main factors which are not present in the case of the soldier disabled, for example, by wounds:—

1. The lesion is in many cases progressive: the man's state of health, and therefore his earning capacity, does not remain at any fairly constant level as would be the case with a soldier incapacitated by an amputated limb. The economic value of the discharged tuberculous soldier—practically never that of a sound man engaged in the same occupation—tends in probably the majority of instances to become progressively less rather than greater. In the case of a maimed man surgical aid, training, and time are all allies in restoring at any rate a part of his previous economic value. His physical health and his skill at the new occupation tend to improve up to a certain maximum, and there is no reason why they should not remain stable for perhaps many years.

2. There exists in the case of a tuberculous soldier the factor of infection. This factor has not to be considered in the case of men discharged for other lesions, with the possible exception of venereal disease.

These two factors make the problem of dealing satisfactorily with the discharged tuberculous soldier a very difficult one. They are factors, of course, which are common to many cases of tuberculosis occurring in the industrial classes in civil life.

A short time ago I made a careful analysis of the cases admitted during the first six months that Beechwood Tuberculosis Hospital, Newport, Mon., was open. Dealing only with the soldiers admitted during that period there were 123 admissions. Of the total 123 cases, 109, or 88·61 per cent., were found to be suffering from pulmonary tuberculosis; 5, or 4·06 per cent., were very doubtful cases of pulmonary tuberculosis and are not considered as such; 4, or 3·27 per cent., were cases of non-pulmonary tuberculosis; and 5, or 4·06 per cent., were suffering from diseases other than tuberculosis. Of the 109 cases of pulmonary tuberculosis, 77, or 70·62 per cent., were absolutely definite—i.e., T.B in sputum; and 32, or 29·38 per cent., were clinically definite, but T.B. not found in sputum.

By taking the past civil and military history and clinical condition on admission into careful consideration an attempt has been made to ascertain what proportion of the men were probably affected with tuberculosis at the time of their enlistment. Certain of the cases (14 in fact) were old patients of the Memorial Association from various areas of Wales. Others gave a history of chronic ill-health, cough, hæmoptysis, or pleurisy existing before the outbreak of war; others again were discharged in periods of a fortnight upwards after enlistment and presented lesions which were incompatible with their occurrence between enlistment and discharge.

There are, of course, many cases in which it is impossible to form an opinion from the available data as to the length of time since the onset of the disease. Nothing much better than a guess can be made as to whether the disease was 'present" or "absent" at the date of enlistment. Such doubtful cases have been subdivided into two groups in the following table (Group III.):—

Group I.—Cases in which there was probably *no* evidence of tuberculosis at the time of enlistment or mobilisation	39
Group II.—Cases in which there probably or certainly was evidence of tuberculosis at the time of enlistment or mobilisation	51
Group III.—Cases upon which an opinion could not be formed:	
(*a*) Evidence on the whole pointing to *absence* of disease at time of enlistment	10
(*b*) Evidence on the whole pointing to *presence* of disease at time of enlistment	9—19
	109

(These numbers do not include the four cases of non-pulmonary tuberculosis and the five cases of "other disease," or the five very doubtful cases of pulmonary tuberculosis.)

If the 19 cases of Group III. are all given the benefit of the doubt and added to Group I.—i.e., all considered as cases presenting no evidence of disease at the time of enlistment—it will be seen that 58 cases fall in Group I.—i.e., 53·2 per cent. (of 109)—and that the remaining 51 cases of Group II. form 46·8 per cent. of the total (109). This latter figure is, in my opinion, too low, but, as will be seen above, every care has been taken to form as conservative an estimate as possible.

It is no business of mine to attempt any explanation of these figures. Three factors, however, readily suggest themselves to account to some extent for Group II. (It has to be remembered that a large number of the cases were voluntary recruits.) 1. The difficulties under which medical examinations of recruits had to be carried on in the first few months of the war. 2. Concealment on the part of the eager recruit of his past medical history. 3. Lack of coöperation with the tuberculosis officers in the early days of the war. Coöperation between the Medical Recruiting Boards and the tuberculosis officers is now very close, and must have the effect of preventing numbers of tuberculous men from entering the Army.

It will be noted that the percentage of open cases—that is, with tubercle bacilli in the sputum—admitted to the hospital, as shown by the analysis of the first six months' working, was very high—namely, 70 per cent. This percentage has been maintained or slightly exceeded in the succeeding six months.

Practically all the men admitted to this hospital are already discharged from the Army or their discharge is pending. They are therefore, strictly speaking, civilians, and this fact—namely, that they are civilians—gives rise to many difficulties, and is likely, in my opinion, to give rise to many more in the near future. The men are suddenly released from rigid military discipline. Those who have been to the front have been inured to the sight of appalling wounds and to the occurrence of various acute forms of illness. As their medical histories show, they have been accustomed to make light of such a commonplace as a severe cold or a chronic cough and have carried on until bowled over by a hæmoptysis or pleurisy or by the toxæmia of tuberculosis. The majority regard tuberculosis as something of comparatively little importance, and they are not disposed in many cases to submit to institutional discipline a moment longer than is absolutely necessary. Many men have been away from home for some months: they may also, owing to military exigencies, have been in several military hospitals before reaching the civil institution. In short, they have become impatient of restraint and anxious to return home under any conditions. This applies to a large number of cases both of single and married men. With the latter there is frequently an added reason for impatience—namely, the economic one. Men quite unfit to attempt it have been found to leave hospital in order to obtain

work to supplement the amount available for the maintenance of wife and family. Especially if the case is an "open" one the consequences may be serious: serious to the man himself who risks a breakdown which may be fatal; serious to his dependents who with inadequate house-room and inadequate food, will almost certainly become infected. The representative figures already given show that the effect of Army service upon the tuberculous subject is in many instances to cause a breakdown of the existing stable condition, and in many other instances to cause the lighting-up of a latent focus.

From the standpoint of public health the effect of discharging these men from the Army with the *option* of applying for sanatorium benefit may be to release an unknown number of centres of infection and to plant these all over the country under frequently inadequate housing and financial conditions. It is perfectly optional for a man as a civilian to accept or refuse the accommodation provided by the Commissioners. For the reasons given many of them refuse to avail themselves of the facilities, or only avail themselves of them to a very limited extent—they want to get home again. Most men recently discharged from the Army, where everything has been found for them, are quite incapable of appreciating the enormous rise in the cost of living. They do not grasp the fact that the purchasing power of a pound is not much more than half what it was before the war. With a small pension—and this for a limited time—plus the few shillings (10*s* per week is the maximum) they derive from the State Insurance, they go quite cheerfully from hospital or sanatorium to their homes and endeavour to maintain themselves and their dependents. The result is, not uncommonly, a complete breakdown and a return to the institution. The single man or widower without dependents, even if his working capacity is only very slight, is for a time, at any rate, fairly well off on his discharge from the Army. He has his pension (temporary and subject to revision), plus his State Insurance Benefit, available for his own maintenance. Many single men have, however, one or both parents to support, and then their economic position approximates to that of the married man with dependents.

In estimating the economic position of the discharged tuberculous soldier it is convenient to consider three stages in his career.

1. The stage before he joined up, that is, his ordinary earnings as a civilian, and presumably—since he was passed into the Army as such—a healthy man.

2. The stage of his Army service, which may have been anything from a few days upwards. This stage naturally divides itself into two periods: (*a*) period of ordinary military life, that is, training or actual service at the front (the man's resources at this stage would be Army pay, plus keep, plus separation allowance); (*b*) period immediately succeeding the breakdown when the man is a patient but still under military control, that is, in a military hospital. His resources are now pay, plus keep, plus separation allowance, minus 7*d*. per diem.

3. The stage after his discharge from the Army—the return to civil status as an invalid. If he has done a certain minimum of military service he will at this stage probably be awarded a temporary pension of varying amount and for a varying period. In addition, if an insured person he will be eligible for the State sickness benefit maximum 10*s*. per week. If the man is in a civil hospital and has no dependents he will not receive this benefit; if he has dependents the weekly amount will be made over to them. Out of hospital, with or without dependents, if quite incapable of work he will receive this State benefit. So that in this third stage the man's resources will be as follows: (*a*) Man with dependents in a civil institution—pension plus State Insurance (made over to dependents) plus maintenance and treatment in hospital or sanatorium for tuberculosis. (*b*) Man without dependents in a civil institution—the same as above, but no State Insurance benefit is payable. (*c*) The man with or without dependents who is incapacitated by his disease and who returns home (as it is quite open to him to do)—pension plus State Insurance plus free treatment by a panel doctor.

It should be again noted that the pension is subject to revision, and that if the man remains incapacitated beyond a certain time the State Insurance money is halved, that is, it drops to 5*s*. a week. Further, that in any case in order to receive the State Insurance money the man must remain quite incapacitated for work. Even an attempt at part-time work will result automatically in the withdrawal of this sum. (There appear to be certain difficulties in the way of Approved Societies granting partial benefits when the man is able to do part-time work.)

From every point of view it would seem to be desirable not to discharge from the Army the soldier suffering from tuberculosis until after an adequate course of treatment in hospital or sanatorium under military control. The case that is going downhill should be retained until the end. The patients in whom it has been found possible to "arrest" the disease should preferably be discharged, not directly to their homes but to undergo training in agricultural or horticultural work in farm colonies established for the purpose. The men would thus be trained to earn a living at that most difficult of things to come by for the "arrested" tuberculosis case—a suitable employment.

There are difficulties of course. The immediate cost to the State would be greater, but in the long run it would prove to be true economy. From the point of view of the men themselves the following are the advantages: 1. No anxiety about financial position of dependents, and therefore no incentive to seek work too early. 2. Being under military control the man would have no option but to continue his course of treatment as long as desirable (with great benefit to the man himself). 3. If farm colonies could be started for the men with arrested disease they would be provided with a means of earning a livelihood under suitable conditions on leaving the colony with the "cure" established.

The gain to the public health by preventing tuberculous soldiers from scattering broadcast to their homes and acting as potential fresh centres of infection is obvious. Retention in the Army is an easy means of securing what is so much needed in civil tuberculosis work—viz., powers of segregation of the infective case. It should be clearly stated that sufficient accommodation is now provided through the Insurance Commissioners and that this accommodation is available for the soldier immediately on his discharge from the Army. The points that this paper seeks to make are: (1) that this accommodation would be of much greater value and that the man himself and his dependents would be much better off if discharge from the Army were deferred; (2) also that sanatorium treatment should be followed by a further period of some months on a farm colony. Possibly after that many could be helped to take up small holdings and so remain "on the land."

A NOTE ON THREE CASES OF ACUTE MYELOID LEUKÆMIA.

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BETWEEN June 29th and August 16th, 1916, three cases of acute myeloid leukæmia have been admitted to the East London Hospital for Children, Shadwell. This may be merely a coincidence, but it is possible also that there has been some increase of late in the disease and these cases are now published in the hope of ascertaining whether there is any ground for the latter assumption.

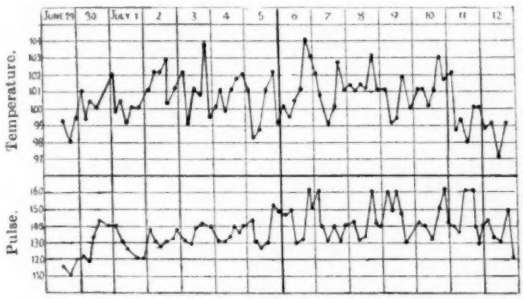
CASE 1.—Male, aged 6, admitted on June 29th, under the care of Dr. Clive Riviere; died on July 13th. (Chart 1.) History: Had been attending in the out-patient department for three months for a dirty mouth, when it was discovered that the spleen and liver were enlarged, which led to a blood examination. State: Anæmia with dirty sallow yellow colour: no hæmorrhages. Gums very pale, spongy here and there; no teeth bad. Enlarged, shotty, discrete glands on both sides of neck. Hæmic murmur over base of heart and a very distinct venous hum. Spleen and liver enlarged. No retinal or subcutaneous hæmorrhages. July 5th: A few slight hæmorrhages on both feet. July 7th: A flame-shaped hæmorrhage present on the right optic disc close to inferior nasal branch of retinal artery. July 9th: Epistaxis last evening. July 12th: Epistaxis and vomiting. Some hæmorrhages over both upper and lower limbs, with a fresh one on the left temple. General condition much worse; more listless and much weaker.

Blood examinations.—1. June 30th. Red cells = 2,237,500 per c.mm. Hæmoglobin = 30 per cent. Colour index = 0·7. White cells = 6900 per c.mm. Differential count (300 cells): Myeloblasts, 225 (75 per cent.); small lymphocytes, 70 (23·33

per cent.); eosinophiles, 1 (0·33 per cent.); and polymorphonuclears, 4 (1·33 per cent.). During count 7 normoblasts and 1 megaloblast seen; 2 mast cells were noted when looking through the film. 2. July. Red cells = 1,675,900 per c.mm. Hæmoglobin = 20 per cent. Colour index = 0·6. White cells = 2200 per c.mm. Differential count (200 cells): Myeloblasts, 117 (58·5 per cent.); polymorphonuclears, 10 (5 per cent.); small lymphocytes, 72 (36 per cent.); and mast cells, 1 (0·5 per cent.). No nucleated red cells seen.

An examination of a stool for ova or worms was negative.

CHART 1 (Case 1).

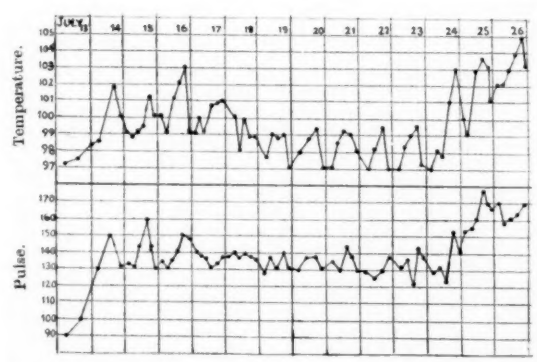


Post-mortem.—Hæmorrhages were found on the pleura, pericardium, and in the heart; also on under and upper surfaces of diaphragm, on great omentum, and on mesenteries. No hæmorrhages found in pancreas or in adrenal glands or any other organ. Petechial hæmorrhages on the skin. Heart: Right side dilated. Thrush-breast appearance on interventricular septum; muscle pale. Lungs: Patchy congestion and œdema; a few hæmorrhages beneath visceral pleura. Bronchial glands not enlarged; many of them congested. Liver: Slightly enlarged and a deep ochre on section. Spleen: Big and firm; dark purple on section. Kidneys: Capsules stripped easily. Ratio of cortex to medulla normal. The left kidney was a pale lemon colour on section; the right was similar, but showed some congestion of the pyramids. Stomach and intestines: These showed no hæmorrhages; some of the Peyer's patches in the lower ileum were swollen and congested. Mesenteric glands showed nothing abnormal to naked eye. Portions of the spleen, liver, kidneys, and several glands were taken for microscopical examination.

A smear from the rib marrow gave the following count (300 cells):—Myeloblasts, 277 (92·33 per cent.); neutrophile myelocytes, 2 (0·66 per cent.); polynuclears, 7 (2·33 per cent.); small lymphocytes, 13 (4·33 per cent.); and eosinophiles, 1 (0·33 per cent.).

CASE 2.—Male, aged 3½ years, admitted July 6th, under the care of Dr. A. M. Gossage; died July 30th. (Chart 2.) Sent in by a doctor for rheumatism, rickets, and anæmia. State: Very pale. No craniotabes, teeth good, and gums sound.

CHART 2 (Case 2).



No hæmorrhages or ulcers; all mucous membranes very pale. Heart: Loud blowing systolic murmur heard at all orifices. Liver: Half an inch below costal margin. Spleen: Two inches below costal margin; edge firm and hard, not tender. Glands: Numerous small glands on both sides of neck in anterior and posterior triangles and in submaxillary region. Axillary glands not enlarged. Right supracondylar gland enlarged. Glands in groin not markedly enlarged. No signs of glands in chest or abdomen. Extremities: No enlargement of epiphyses or tenderness of bones. A purpuric spot over left external malleolus. July 18th: Glands, no change. Liver two finger-breadths below costal margin and spleen one finger-breadth below; spleen smaller. No retinal hæmorrhages seen.

Blood examinations.—1. Red cells = 1,800,000 per c.mm. Hæmoglobin = 28 per cent. Colour index = 0·8. White cells = 17,200 per c.mm. Differential count (200 cells): Myeloblasts, 85 (42·5 per cent.); small lymphocytes, 66 (33 per cent.); large lymphocytes, 10 (5 per cent.); polynuclears, 37 (18·5 per cent.); transitionals, 1 (0·5 per cent.); and eosinophiles, 1 (0·5 per cent.). Some of the myeloblasts show a few neutrophile granules. No nucleated red cells seen.

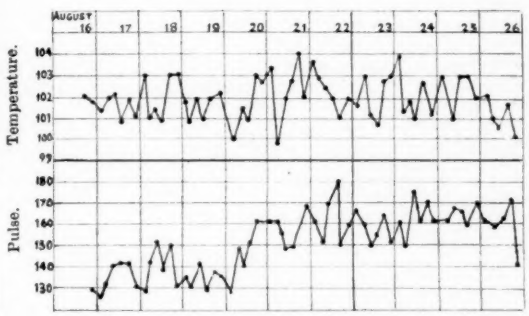
5. Final examination.—Red cells = 1,500,000 per c.mm. Hæmoglobin = 23 per cent. Colour index = 0·8. White cells = 3132 per c.mm. Differential count (200 cells): Myeloblasts, 145 (72·5 per cent.); large lymphocytes, 5 (2·5 per cent.); small lymphocytes, 9 (4·5 per cent.); large hyalines, 1 (0·5 per cent.); polynuclears, 35 (17·5 per cent.); and neutrophile myelocytes, 5 (2·5 per cent.). No nucleated red cells seen. Many of the myeloblasts showed a few neutrophile granules, and some of these cells were of large diameter.

Summary of three intermediate counts: White cells, 6800, 22,000, and 7800 per c.mm. respectively. Percentages of cells in differential counts: Myeloblasts, 67·5, 81, and 60·5 respectively; large lymphocytes, 3·5, 1, and 2·5 respectively; polymorphonuclears, 13, 3, and 9 5 respectively; and neutrophile myelocytes, 0, 0·5, and 0 respectively. No nucleated red cells were seen in two counts and a single megaloblast in the remaining one. Some of the myeloblasts were always noted to contain a few neutrophilic granules.

Post-mortem not obtained.

CASE 3.—Female, aged 5½ years, admitted on August 16th, under the care of Dr. Gossage; died on August 26th. (Chart 3.) History: Spots 18 days; sore-throat 3 weeks.

CHART 3 (Case 3).



State: Purpuric spots on chest, back, abdomen, and on both upper and lower limbs. Very anæmic. A number of carious teeth; breath very foul, tongue thickly coated, and tonsils large, ulcerated, and covered with a dirty white membrane. Glands enlarged and discrete all the way down both sides of neck. Heart: Systolic murmur at apex and base of heart; not conducted. Liver: 1½ inches below costal margin below, to the fourth space above in right nipple line. Spleen: 1¾ inches beyond costal margin. Abdomen soft; no free fluid. Œdema both legs. Given 8000 units of antitoxin.

Blood examination.—Red cells = 2,650,000 per c.mm. Hæmoglobin = 30 per cent. Colour index = 0 7. White cells = 1132 per c.mm. Differential count (50 cells): Myeloblasts, 43 (86 per cent.); small lymphocytes, 5 (10 per cent.); polymorphonuclears, 1 (2 per cent.); and neutrophile myelocytes, 1 (2 per cent.). Great difficulty was encountered with the white cells owing to the extreme leucopenia. The leucocytes were enumerated three times and the average taken. In the differential count only one white cell was found in every 20 or 30 fields of the oil-immersion lens. Fortunately the slide was excellent and left no doubt as to the nature of the leucocytes. The patient was so ill that she was not disturbed again; it is regrettable that only one blood examination could be made.

Other investigations showed the presence of Vincent's spirochætes and the B. fusiformis. The examination for diphtheria by smear and culture was negative.

Post-mortem.—Petechial hæmorrhages mainly confined to face and extremities. Heart: Right side dilated; the musculi papillares of the left ventricle showed well-marked thrush-breast change. Heart muscle pale. Some of the pericardial hæmorrhages passed into the muscle beneath.

Pericardium showed hæmorrhages on visceral layer on front and back of right ventricle. A few small hæmorrhages were present on upper surface of right half of diaphragm. Glands of neck and bronchial glands were discrete and numerous, but little enlarged. Larynx: Normal and showed no membrane. Liver: Slightly enlarged and showed a moderate degree of fatty change on section. Spleen: Enlarged and deeply congested. Malpighian bodies prominent. Kidneys: Slightly enlarged; capsules stripped well. Ratio cortex: medulla normal; very pale and rather greasy on section. Stomach: A few small hæmorrhages on mucosa. Intestines: No hæmorrhages found. Peyer's patches prominent in lower ileum and in cæcum. Mesenteric glands appeared normal. No hæmorrhages found in pancreas, adrenal glands, uterus and its appendages, or anywhere except in organs noted. Portions of liver, spleen, kidneys, and several glands were set apart for microscopic examination.

Marrow: A smear from the rib marrow gave the following differential count (400 cells): Myeloblasts, 338 (84·5 per cent.); small lymphocytes, 27 (6·75 per cent.); polymorphonuclears, 9 (2·25 per cent.); neutrophile myelocytes, 22 (5·5 per cent.); eosinophile myelocytes, 1 (0·25 per cent.); and large hyalines, 3 (0·75 per cent.). Only 35 nucleated red cells were observed while doing the above count. In the marrow counts the cells classed as myeloblasts were large, palish, mononuclear cells with little protoplasm and without granules; they did not quite resemble the myeloblast of the blood.

Summary and remarks.—In a recent text-book the following statement is made:—

Acute myeloid leukæmia is an extremely rare condition, which differs from the ordinary form of the disease in the shortness of its course, in the usual absence of marked splenic enlargement, and in the relatively low leucocytosis. There may be considerable involvement of the lymphatic glands. Mast cells, eosinophiles, and myelocytes are present, but the predominant cell may be either a myeloblast or a cell identical with the large hyaline of normal blood or a granular variety of it. (For the morphological appearances of the myeloblast see coloured plate facing p. 11 in Panton's "Clinical Pathology.")

It is not proposed in this note to enter upon any discussion as to the exact pathological nature of these cases, but it should be stated that even now hæmatologists are not in agreement regarding them, and that in the days when I was a student at St. Thomas's Hospital they were all indiscriminately included under the title of acute lymphatic leukæmia. One paper (with coloured plate) may, however, with advantage be referred to—namely, "Some Atypical Cases of Leukæmia," by Dr. P. N. Panton and Dr. H. L. Tidy.[1] Here in Class 1 the predominant cell was some form of myeloblast, as was also the case in these examples forming the subject of my note.

As regards sex, age, nationality, and distribution: No. 1 was a male, aged 6 years, a Jew from Rotherhithe; No. 2 was also a male, aged 3¼ years, British, from Canning Town; while No. 3 was a female, age 5½ years, British, from Poplar. In all no very definite history of onset could be obtained, and it was usually the discovery of glands or of an enlarged liver and spleen that led to a blood examination and thence to a diagnosis. In two cases the mouth, teeth, and gums were in a bad state; in the remaining one they were good. In two very definite subcutaneous and other hæmorrhages were present clinically; in one the presence of hæmorrhages was doubtful, a suspicious spot or two only being observed. In all the enlargement of the liver and spleen, while perfectly obvious and definite, was only of a moderate degree. All had one or more sets of glands palpable and enlarged to a greater or less extent.

The hæmorrhages, already noted, constituted the principal feature in the necropsies of Cases 1 and 3. In both the pericardium and heart muscle showed petechiæ; in addition, in each the latter gave macroscopic evidence of fatty change. In Case 1 the marrow contained 96·66 per cent. of non-granular mononuclear cells and 92·33 per cent. of myeloblastic or stem cell types; also for Case 3 in the marrow count the percentage figures of the same varieties of cell were 91·5 and 84·5 respectively.

In every example the deficiency of red cells was great. Case 3 alone had an ante-mortem count of just over 2½ millions; on the other hand, Cases 1 and 2 were each about 1½ millions at the final examination. In no instance was a count of 3 millions obtained. In von Jaksch's anæmia Thursfield[2] gives the average in a series as 2,900,000 per c.mm., and remarks that low counts are very uncommon. The colour index was 0·8 for two and 0·6–0·7 in the remaining one. Nucleated red cells were usually absent, and always so before death; only 8 were seen in the first differential count of Case 1 and none afterwards; they were wanting in Case 3, and in 2 a single megaloblast was once observed in five counts.

In Case 1 myeloblasts were 75 per cent. and lymphocytes 23·33 per cent., to be followed by percentages of 58·5 and 36 respectively. In Case 2 the percentages of myeloblasts taken in the order of five counts were 42·5, 67·5, 81·0, 60·5, and 72 5. In Case 3 the myeloblasts reached 86 per cent. in the only examination that was possible. Next taking the leucocytes, the only example showing anything approaching a leucocytosis was Case 2—namely, 17,200 on the first examination and 22,000 on the third; later on before death the counts were 7800 and 3132. Case 1 gave counts of 6900 and 2200. In the girl the leucopenia amounted to 1132. Although few cells could be got together to form a differential count, the predominance of the myeloblast was unquestionable. Confirmation was added by the post-mortem findings and the count of the marrow film.

As regards Case 2, Dr. Gossage inclined to a diagnosis of acute myeloid leukæmia from the first, while Dr. Panton and the writer held it impossible to decide between leukæmia and von Jaksch's anæmia on the first count. The four subsequent examinations made prior to death turned the diagnosis to acute myeloid leukæmia. The points deciding in favour of the latter were the practically complete absence of nucleated red cells, if one wandering megaloblast be excepted, the steady fall in the white cells, and the rise in the percentage of myeloblasts, which on one occasion touched 81 per cent., from the initial percentage of 42·5; these cells were 72 5 per cent. just before death, when the percentage of non-granular mononuclear cells was 80. I was glad Dr. Panton agreed with my diagnosis in the first two cases; the third he did not see.

Dr. Gossage and Dr. Riviere have accorded me permission to make full use of their clinical notes, for which I desire to tender them my thanks.

Shadwell.

[1] Sonderabdruck aus Folia Haematologica, Band xvii., 1913.
[2] Diseases of Children, p. 529.

LIGATURE OF THE LEFT HYPOGASTRIC ARTERY FOR TRAUMATIC GLUTEAL ANEURYSM.

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CHIEF ASSISTANT SURGEON, AMERICAN WOMEN'S WAR HOSPITAL, PAIGNTON, SOUTH DEVON, ENGLAND.

IN view of the rarity of traumatic aneurysms of a similar origin the following case is presented.

The patient, a lance-corporal, was admitted to the American Women's War Hospital on July 31st, 1916, having been wounded in the left buttock by a fragment of shell on July 21st. He stated that the missile was removed in France two days later. There was no history of unusual hæmorrhage, and since operation the wounds had been healing rapidly.

On admission to this hospital the buttock was normal in size and colour without tenderness. There were two small superficial incised wounds nearly healed and granulating cleanly. Manipulation of the limb elicited no pain. The temperature was normal. The next day the patient was allowed to get up; he walked without pain. Three days later he developed an evening temperature of 100·6° F., but suffered no pain. With a normal temperature next morning he got up, walking about without symptoms during the day. At evening the temperature rose to 102°, and for the first time he complained of a dull aching pain down the back of the thigh. Examination of the buttock revealed no abnormality save a slight general swelling. During the night the pain became more severe, requiring sedatives for relief. The patient continued in bed through the next day with persistent dull pain from thigh to calf. The evening temperature was again high. The buttock had enlarged considerably, was of normal colour and not tender. Pressure upon it increased the pain down the limb. A slight thrill was detected, and on auscultation a definite bruit was heard. The diagnosis of gluteal aneurysm was made, and it was decided to operate before the blood could further dissect the tissues.

The operation was done the next morning (August 7th). In view of the superficial nature of the wounds, it seemed likely that the aneurysm sprang from one of the terminal

branches of the gluteal arteries, and that it could be controlled through a buttock incision. Nevertheless, an emergency laparotomy lay-out was prepared. With the patient in the prone position, a 7-inch incision was made from the posterior superior spine of the ilium towards the great trochanter of the femur. The fibres of gluteus maximus and medius were separated, revealing a tense, pulsating, purple layer of fascia. When this was incised there was a sudden spurt of arterial blood, rising upwards some four feet. The opening was rapidly enlarged, revealing a cavity beneath the gluteal muscles with a capacity of about a pint, extending inwards to the region of the greater sciatic notch. The bleeding was profuse, but with rapid sponging it could be seen that the bleeding point lay within the great sciatic notch beyond the reach of clamps. A gauze pack was introduced and firm pressure applied. The patient's condition had rapidly grown worse. The pulse, which before operation was about 100 and of good quality, jumped quickly to 140, becoming thready and weak. In spite of pressure the blood soaked rapidly through the pack and began dripping away. Ligature of the left hypogastric artery was decided upon.

The patient was turned and the abdomen prepared, pressure being constantly applied upon the gluteal pack. A left rectus incision was made from a point one inch above the umbilicus to the pubes. The small intestines were packed back. The sigmoid had a very short mesentery, much hampering the operation. It was mobilised by incising the mesenteric peritoneum externally. Following up the external iliac artery, the hypogastric artery was isolated and ligated. No attempt to isolate the anterior and posterior divisions was made, as it was uncertain from which branch the aneurysm had sprung. The mesenteric peritoneum was sutured and the abdominal wound hastily closed. The gluteal pack was removed for inspection. There was no clotted blood. The cavity extended to the upper part of the greater sciatic notch and, feeling through the notch, a rounded cavity about an inch in diameter was discovered within the pelvis. A slight bleeding deep in the cavity was controlled by two clamps, which were left in place. The wound was firmly packed with gauze. The tissues seemed to be clean with no signs of sepsis. Before removing the patient from the table 250 c.c. of normal saline were administered intravenously.

With stimulation the patient gradually improved, and the next day, though extremely pale, was running a pulse of 130, of fairly good quality. There was no bleeding from the buttock wound, but some discomfort from the packing. Abdominal distension developed, complicated by occasional vomiting. It persisted for four days, eventually relieved by enemata and catharsis. On the fifth day the abdominal wound broke down. The skin sutures were removed from the lower half, the wound packed with gauze, and strapped with adhesive. Since the second day there had been a mean temperature of 101°. At this time the gluteal pack and clamps were removed. There was no bleeding. The wound was lightly packed.

One week after the operation the patient was in good condition, with a pulse of 100 of good quality. The abdominal wound was rapidly cleaning, the gluteal wound closing in by contraction and granulation. The temperature was down to 99°. The appetite was good and food well retained. There was no distension, the bowels moving daily. The pallor of the face was giving way to a healthy flush.

On August 20th (13 days after operation) a sudden attack of vomiting developed, after which the patient complained of abdominal pain. On removing the dressing about 1½ feet of small intestine were found extruding from a small perforation in the lower half of the wound. The intestine and adjacent area were carefully cleansed and the gut replaced. The wound was firmly strapped. There were no severe consequences. For three days there was a moderate distension without vomiting. The temperature stayed about 101° for a week and then gradually fell to normal. For four days the intestine was visible through the wound when dressed, being shut in then by granulations.

One month after operation the patient was up in a chair, in excellent condition. Both wounds had granulated to the level of the skin. A left toe-drop was noticed, which still persists though improving under massage and electrical treatment. It was not noticed before operation and resulted probably from trauma to the sciatic nerve or its roots by pressure of the pack or by operative procedures. There was a small area of anæsthesia over the front of the ankle and lower third of the leg.

This case is a type of many others in which an injured vessel, stretched to the breaking point, bursts with the sudden appearance of the signs of aneurysm. An X ray, taken during convalescence, reveals a small fragment of shell, about a quarter of an inch in all dimensions, lying within the pelvis near the left border of the lower sacrum. It apparently traversed the great sciatic notch, injuring the superior gluteal artery just within the pelvis.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF PATHOLOGY.

The Pathology of Speech.—The Rôle of the Phagocyte in Cerebro-spinal Meningitis.

A MEETING of this section was held on Nov. 14th, Professor F. W. ANDREWES, the President, being in the chair.

Dr. E. W. SCRIPTURE demonstrated by means of lantern slides a New Method of Studying the Pathology of Speech. The speech was registered on a revolving blackened cylinder. The inscriptions showed characteristic abnormalities in many diseased conditions. These abnormalities could be seen in the records long before any speech defect could be detected by the ear. A certain peculiar laryngeal vibration was always found in records of disseminated sclerosis; a speech record in early cases could be depended upon to avoid the frequent mistake of diagnosing this disease in its early stages as neurasthenia or hysteria. The speech in general paralysis likewise presented an abnormality of a peculiar kind; it consisted in an uncertainty of the speaker concerning the typical forms of the sounds. For example, the paretic when saying "Peter Piper's peppers" would make all the "p's" slightly different from one another. Each "p" alone would be a correct one in some language or dialect. Any normal person would make all the "p's" correct to the type he had learned, and no one could purposely change the type from moment to moment. It was only the paretic who showed this vacillation in type. For this condition the term "asaphia" was introduced. Asaphia was clearly seen in the records long before it could be detected by the ear. This offered a means of avoiding mistaken diagnoses in early cases. One object of these investigations was to establish the speech peculiarities for the various diseases. When this had been accomplished, there would be no confusion or doubt concerning the speech signs. They were fixed—and the diagnosis often settled—the moment the record was made. In a case of doubt the patient would be sent to the pathological laboratory for an inscription as a kind of speech-Wassermann. Another object of these investigations was the reduction of the speech signs to fundamental forms. Thus the many varieties of speech in disseminated sclerosis had been found to be simply combinations of ataxia, anataxia (i.e., efforts to control ataxia), hypertonia (spasticity), and anatonia (efforts to control spasticity). The earliest sign of general paralysis, asaphia, was followed by apraxia and higher mental disturbances, all of which showed themselves in speech. Speech curves were shown from a girl who had worn a tracheotomy tube for 14 years and who passed no air through her larynx. She had learned to speak in a perfectly clear way although very faintly. There were even differences in pitch as she sang "ah." This was done by a peculiar action in the mouth and throat. The speech of those who had learned lip-reading must be regarded as pathological on account of its defective nature. The wrong pitch of the voice, the hollow tones, the monotony, the mistaken enunciation, &c., were all results of the teaching. Dr. Scripture had for some years been investigating these abnormalities, and he showed how many of them can be corrected. The field of speech pathology was very vast and had many ramifications into laryngology, otology, neurology, and general medicine. Although the illustrations in this communication had been drawn mainly from neurology, this was merely the result of special interest. It would be a mistake to confine the work to any one clinical department; its correct place was in the pathological laboratory under the influence of teaching concerning the general principles of disease. The work was so eminently practical that opportunity should be offered to every student to learn something of it. The difficulties of this work in a completely unexplored field had been very great; the speaker expressed deep gratitude to those who have aided him, particularly Dr. F. E. Batten, of the National Hospital for the Paralysed and Epileptic, Professor Andrewes, of St. Bartholomew's Hospital, Dr. F. W. Mott, of the Claybury Laboratory, and Dr. A. Feiling, of the Maida Vale Hospital, and to the National Medical Research Committee for some aid in defraying expenses. All

the records made at the institutions mentioned were the first ones made of these diseases.

Dr. CRESSWELL SHEARER and Dr. H. WARREN CROWE communicated a paper on the Rôle of the Phagocyte in Cerebro-spinal Meningitis. As the result of a number of experiments with freshly drawn spinal fluid obtained by lumbar puncture of cerebro-spinal fever patients, in which the leucocytes had been shown to be alive (by trypan-blue staining and observation on the warm stage), Dr. Shearer and Dr. Crowe stated that they had obtained good evidence that the meningococcus could be taken up by human leucocytes in large numbers and retained by them for some considerable time without undergoing digestion. They had succeeded in recovering living germs from the leucocytes of a number of such cases. It was well established that in the case of freshly isolated strains of the meningococcus the leucocytes would not take them up at first; although there were said to be exceptions to this rule (Kolle and Wassermann), Dr. Shearer and Dr. Crowe had met with none in their work. In the case of old laboratory cultures, on the other hand, ingestion on the part of the phagocytes took place with great rapidity. In a short time the germs were killed and completely digested by the leucocytes. This was also found to be the case with the majority of nasal strains of the meningococcus obtained from chronic "carriers," although there were great individual differences in this respect. In the intermediate stage between the fresh spinal condition and the naso-haryngeal state, it was shown experimentally that they could be taken up, but not killed, by the leucocytes. They could be recovered from these leucocytes after periods of 24, 48, or even 60 hours, and grown on artificial media. The conclusion, therefore, was that infection occurred by leucocytic conveyance. This might be the reason why direct infection was so uncommon in cerebro-spinal fever. The virulent organism was insusceptible of being attacked by the phagocytes. The longer the germs grew in the "carrier" throat the more easily would they be ingested, until a time was reached when, on ingestion, they were also destroyed. Somewhere between these two extremes infection might produce the disease. The organism was sufficiently weakened to give in to the leucocytic attack but not to lose its life in the battle. Should infection take place at this point the leucocytes would pick up the germs from the mucous membrane of the naso-pharynx and, in the course of their wanderings, sometimes carry them into the spinal canal. There the liberated organisms might set up the disease at the same time re-acquiring the power of resisting the attack of the leucocytes in the presence of normal serum.

SECTION OF OTOLOGY.

Exhibition of Cases and Specimens.

A MEETING of this section was held on Nov. 17th, Capt. H. J. MARRIAGE, R.A.M.C. (T.), the President, being in the chair.

The PRESIDENT, in the course of a short introductory address, intimated that a committee of the section had been appointed to encourage research in otology, consisting of Mr. J. S. Fraser, Dr. Albert Gray, Mr. G. J. Jenkins, Sir William Milligan, Mr. W. M. Mollison, Mr. Sydney Scott, with the President and honorary secretaries as *ex-officio* members. One of the objects of the committee would be the standardisation of the tests for hearing while others were the promotion of post-mortem investigations in cases of deafness, and the following up of interesting cases to make the records complete.

Dr. P. WATSON-WILLIAMS (Bristol) exhibited a female patient, aged 26, in order to demonstrate a good result in hearing two months after myringotomy for chronic adhesive catarrh, which had persisted for several years. Having found that the left sphenoidal sinus was infected, he opened and drained it; but finding also stapedo-vestibular ankylosis, he felt it was a case calling for the performance of myringotomy. Within five minutes of recovering from the anæsthesia she could hear whispered words at the distance of 24 feet. With the idea of producing more permanent improvement, he removed the drum more freely, also the lower half of the handle of the malleus. Though the drum was dry at the time, acute otitis media followed a few days after the operation, which he attributed to the existence of a chronic latent infection of the middle ear. He urged that an examination of the nasal sinuses should be made in all middle-ear infections.—The case was discussed by the PRESIDENT, Sir WILLIAM MILLIGAN, Mr. HERBERT TILLEY, Dr. W. HILL, Dr. DUNDAS GRANT, Dr. URBAN PRITCHARD, and Mr. S. SCOTT, none of whom were hopeful of anything like a permanent result from this procedure for the condition named.—Dr. WATSON-WILLIAMS, in his reply, reminded members that there was a marked improvement before suppuration could have been a factor. He carefully pointed out to the patient and her parents that he could not guarantee a permanent result, and he operated upon the worse ear.

Mr. J. S. FRASER demonstrated, by means of the epidiascope, sections of (1) a case of Otosclerosis from an old woman; (2) Fracture of the Base of the Skull involving the Middle Ear, with only slight changes in the labyrinth; (3) Fracture of the base of the Skull, with transverse vertical fracture of the petrous bone, and hæmorrhage in the hollow spaces of the labyrinth.—Mr. C. E. WEST thought the case lent colour to the theory that otosclerosis was essentially an infective or post-infective process originating in the tympanum, and it was important to arrive at a definition of the term otosclerosis. He expressed his objection to the term "chronic adhesive process."—Dr. DAN MCKENZIE suggested that one should be wary against over-estimating the value of post-mortem specimans in controversy. There was a difficulty in tracing a pathological connexion between the local inflammatory condition and the otosclerosis.—Dr. A. GRAY (Glasgow) differed from the view taken by Mr. Fraser, as he had seen several specimens of otosclerosis without any otosclerotic change in the bone itself; nor had he seen round-cell infiltration or any sign of activity.—Sir W. MILLIGAN thought it would be a hard task to prove that otosclerosis was secondary to the condition of the middle ear. He believed the cause would be found to be related to one of the internal secretions of the body; for example, when otosclerosis occurred in young girls it was usually at the time they commenced to menstruate, though he did not suggest the relation of cause and effect. The family history of these cases should be carefully investigated.—Mr. FRASER replied.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

Functional Gastric Disturbance in the Soldier.

THE quarterly meeting of this association was held at the Medical Society's Rooms, Chandos-street, W., on Nov. 21st, Lieutenant-Colonel DAVID G. THOMSON, the President, being in the chair.

The PRESIDENT alluded in sympathetic terms to the decease of a distinguished physician and psychologist, Dr. Ralph Brown, who was assistant physician at Bethlem and Bridewell Hospitals and proposed a vote of condolence to Dr. Brown's relatives. He invited information from members which would assist in carrying out the project of having overseas branches of the association, the idea having been strongly taken up in 1891. He concluded by saying that the registration of nurses was being watched by the Council.

Temporary Captain COLIN MCDOWALL, R.A.M.C., read a paper entitled "Functional Gastric Disturbance in the Soldier." He said that functional disturbance of the digestive system was a common accompaniment of neurasthenia, from which latter complaint many soldiers returning from the war were suffering. Anorexia arising from the mental state was not unusual. Sometimes patients who had been on a special diet for a period on account of organic disease found themselves unable to resume normal diet when the time had arrived for them to do so. One of the cases narrated was that of a single man, aged 25, who was earning very little in a menial occupation when war broke out. While at the Dardanelles he developed dysentery and "gastritis," but stated that before that happened his nerves became bad. He had diarrhœa and vomiting, and was sick every day. He found himself unable to walk, and his urine dribbled away in the day time, and night time always resulted in his being wet. On arriving in England he was treated in a hospital, but he still had vomiting. Ever since leaving the Dardanelles he had lived on milk and custard, and had been kept in bed always on account of the weakness of his legs. When Captain McDowall saw the patient he convinced him that his legs were not as weak as he supposed, and he was encouraged to walk; at the same time he was put upon light diet, from which he was soon transferred to ordinary meals. He was not sick in the hospital once, and he became an active worker in the ward, later going for five-mile route marches

with other patients. Two months after the commencement of treatment at this hospital he went back to duty in good health, his weight having increased 7 lb. When the dysentery was cured this weak-minded man lacked the initiative to tackle ordinary food: he was drawn along the path of the régime of a hospital, but at that stage a small amount of individual attention would have obviated much of the subsequent state. So long as he was treated as an invalid he remained such. A neurasthenic was usually reasonable, and much good resulted from making his thoughts run along new lines. A somewhat similar case was that of a soldier who had been in nine hospitals before coming under Captain McDowall's care. Any emotion in his case caused vomiting, but a good result was obtained by psychical methods. He (the speaker) had not met with any cases of neurotic vomiting in which the symptoms were such as to endanger life, but in one case such a danger might have been possible, and this was described in detail. A good result here, also, was anticipated. The exact mechanism of the production of the symptoms was not clear, and how much was due to vagal stimulation was uncertain. The vagus could influence not only the secretions, but the state of motility of the stomach muscle. Vagal stimulation performed experimentally, could produce turbulent gastric peristalsis, which might readily change into retrograde peristalsis, and vomiting might ensue. The practical point was that the vomiting was due to emotional stress, and the treatment should be directed to the offending emotional tone. This could be done by giving the patient a true insight into his symptoms, removing any worrying element, and gradually restoring to him the self-confidence which he had lost. Each case must be dealt with individually and on its own merits.

Dr. R. H. STEEN commented on the fact that many of the patients whose cases Captain McDowall narrated showed a hereditary predisposition to the condition described and to nervous instability. With regard to the strong influence which the emotions exerted on the bodily state, it had been shown that this influence made itself felt, not only on the gastro-intestinal tract, but also upon the adrenal glands. He could understand vomiting following a definite emotion, but he was anxious to know the views of Captain McDowall as to why the vomiting persisted.

Dr. R. ARMSTRONG JONES thought the thesis had supported William James's theory, that the emotion was not the cause of the vomiting, but the vomiting produced the emotion. He asked whether the vomiting was accompanied by any elevation of temperature; that was so in some cases of shell shock he had seen in whom vomiting was present. A strong emotion would often raise the temperature. Neurasthenics were very imitative, and it was bad policy to place such cases in wards with patients who had fits. He raised the question whether such men as Captain McDowall had described were fit to be sent back to the fighting line.

Mr. J. NOEL SERGEANT expressed the view, from intimate personal experience, that the victims of shell shock who vomited did not realise that the vomiting was due to the shock, but attributed it to some organic lesion. They continued to vomit because their dread acted as a continual mental irritant.

Dr. C. F. FOTHERGILL said his custom was to show the patients that the case was sympathetically understood, and then feed them well. If they vomited a meal another should be ready to give them. That had a very beneficial effect.

Dr. T. DRAPES (Enniscorthy) did not agree with Dr. Armstrong-Jones that the vomiting produced the emotion, especially as when the emotional state was abolished the vomiting ceased. These cases retained a condition of cerebral irritability, and therefore of susceptibility to all influences.

The PRESIDENT had found vomiting in cases of shell shock comparatively rarely, but the cases which Captain McDowall saw were sent to a special institution.

ERRATUM.—In the report of the meeting of the Medical Society of London held on Nov. 13th, published in THE LANCET of Nov. 18th, p. 864, we stated that Lieutenant Dunn, R.A.M.C., recounted his clinical experience of nephritis in France in the casualty clearing station zone. The initials of Lieutenant Dunn were given as W. H., but it was Lieutenant John Shaw Dunn, R.A.M.C., director of the Clinical Laboratory, Western Infirmary, Glasgow, who contributed to the debate.

Reviews and Notices of Books.

Crowley's Hygiene of School Life.

By C. W. HUTT. London: Methuen and Co. 1916. Pp. 428. Price 3*s.* 6*d.*

Newsholme's School Hygiene.

By JAMES KERR, M.D. Cantab. Eleventh edition. With 49 illustrations. London: George Allen and Unwin, Limited. 1916. Pp. 352. Price 4*s.* 6*d.*

IT so happens that the two best English works dealing with school hygiene were written by authors who were subsequently transferred to appointments under Government departments. We refer to "Newsholme's School Hygiene" and "Crowley's Hygiene of School Life." The advances in this important section of preventive medicine and the alterations brought about by legislative enactments in recent years made it imperative that both works should be rewritten if they were to retain their usefulness. The authors by reason of their official position were debarred from performing this duty. During this year, therefore, we have had the coincidence of the issue of both books in a new form entirely rewritten by new authors. It is no light task, and one from which many would flinch, for a new author to rewrite a standard work; and this is particularly so under the special circumstances in the case of these two books. We have therefore to congratulate both Dr. James Kerr, who was responsible for the rewriting of "Newsholme's School Hygiene," and Dr. C. W. Hutt, to whom has fallen the same task in relation to "Crowley's Hygiene of School Life," upon the conspicuous success which has crowned their labours. Under the circumstances we have detailed it is inevitable that the one book should seem to challenge comparison with the other, and the doubt naturally arises whether one is not redundant. This fear is dispelled immediately upon a comparison of the books, which differ so greatly in content and in the treatment of the subject matter that no question of rivalry or even of overlapping arises.

"Newsholme's School Hygiene" has long been the familiar possession of all those interested in the health of school children, but at the time of its first appearance in the year 1887 under the signature of its original author, Dr. Arthur Newsholme, the subject of school hygiene was little more than a patchwork of hygienic commonplaces applied to the special requirements of the school. To-day the subject has assumed vast proportions, and it is not saying too much when we claim that the very existence of a satisfactory standard of physical health among the adult population, and consequently of future generations, depends on the intelligent application of the principles of health in the interests of our school children at the present moment. The modest proportions of "Newsholme's School Hygiene," as presented by its early editions towards the end of the last century, were implicit in the existing conditions, but even then it always contrived to keep a little in advance of the times and to lead rather than to follow. It still remains true to tradition and in its new appearance there is no falling away from the high standards established. It is no exaggeration to say that as far as England is concerned we owe much of the modern conceptions of school hygiene to Dr. James Kerr, the author of this new edition. A substantial portion of the research work which has been carried out in connexion with improvements in the health and nutrition of school children has been pursued under his direction in the schools which are administered by the Education Committee of the London County Council. In a sense this new volume is a memorial of the liberality and enterprise of London's educational authority, and of the zeal and hard work of the large staff who have worked under their distinguished chief. As at present constituted, "Newsholme's School Hygiene" is not only an authoritative text-book of all that is soundest in the subject, but it also contains a great deal of original matter which heretofore has only been independently published or has previously appeared in "School Hygiene" and other journals. The most superficial reading of the chapters on speech, eyesight, the care of abnormal children, and deafness will convince the reader of the enormous progress which has been made in the subjects since the publication of the last edition, and it is most gratifying to us Englishmen to realise that most of these

advances are due to the work and enterprise of our own countrymen. We feel convinced that for its size and scope there is no more complete and valuable work on school hygiene than Dr. Kerr's new edition of Dr. Newsholme's well-known volume.

Dr. Hutt's standpoint is that of the administrator seeking to work out conscientiously the problems involved in the practical application of such enactments as the Education (Provision of Meals) Act, 1906, the Education (Administrative Provisions) Act, 1907 the Education (Choice of Employment) Act, 1910, or the Education (Defective and Epileptic Children) Act, 1914. His book therefore deals with the actual world in which at the present moment the school medical administrator finds himself and with the problems which immediately torment him, while Dr. Kerr's book is written from the point of view of the independent investigator, untrammelled by the toils of administration. Dr. Kerr is original, stimulating, and provoking. His basis is the physiology of the child and his needs, and he does not concern himself with the practical difficulties of the administrator; where his book touches upon the limitations of the law it is unconcerned or frankly critical. It enters a vast field of research, into which Dr. Hutt, working under the limitations of legality, does not venture a foot. The great subject of educational hygiene, including the absorbing problems of over-pressure, of curriculum, of the physiology of writing and of reading, fully treated by Dr. Kerr, is entirely ignored by Dr. Hutt. This serves to emphasise what an important section of his work the busy school doctor has been virtually excluded from by the limiting effects of legislative enactments. On the other hand, the administrator will look in vain to Dr. Kerr's book for help or guidance on such important questions as, for instance, the equipment of a school clinic or the administration of the Acts dealing with the employment of children or the provision of school meals. For these he must have recourse to Dr. Hutt's book.

The books are thus complementary one to the other, and it is a pity that the titles of the two works were not so framed as better to guide the student with regard to their respective subject matters. One does not expect, for instance, in a book on the "Hygiene of School Life" to find no reference to the subjects of fatigue or of clothing. Dr. Hutt's task has been that of discriminating selection from a vast amount of material to be found in official reports. This he has performed with almost unerring judgment, and his conclusions are in every case eminently sound and convincing. We have detected only one error of judgment in the whole of the work, and that is the useless reproduction on a reduced scale of Snellen's types for vision testing. Particularly admirable is his treatment of the infant and the infants' school, including the lower age-limit of school attendance, day nurseries and schools for mothers, of the equipment of the school clinic and of the measures, including disinfection, to be taken for prevention of spread of infectious diseases. There is one practical difficulty constantly present to the medical administrator which has not received adequate consideration at the hands of Dr. Hutt—we refer to the freeing of the scholars in our public elementary schools from the infestation of parasitic vermin. The problem is urgent and clamant.

With this one exception Dr. Hutt's survey of the administration of the Acts and official regulations in regard to school medical work is complete, and it easily takes the foremost place amongst works dealing with this aspect of school hygiene. The excellence of the print and of the diagrams and illustrations is a little astonishing, considering the price at which it is published. Together with Dr. Kerr's work, it covers the whole field of modern school hygiene, and it may confidently be expected that these two books will long remain our best standard works upon this subject.

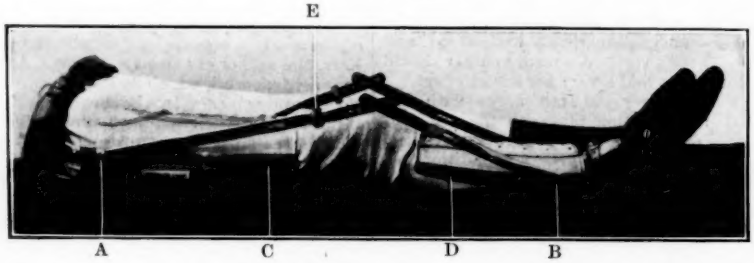
The Making of Micky McGhee, and Other Stories in Verse. By R. W. CAMPBELL. Illustrated by H. K. ELCOCK. London: George Allen and Unwin, Limited. 1916. Pp. 100. Price 3*s.* 6*d.* net.

THE author claims nothing more for his stories than that they are simply soldier rhymes, and he dedicates them to the gentlemen of the ranks with whom he has spent happy days. The rhymes are realistic and convey something of the spirit as well as of the language of the trenches. Mr. Elcock's drawings cleverly hit off the situations.

New Inventions.

AN AMBULATORY EXTENSION SPLINT FOR THE LOWER LIMB.

THE splint figured in the accompanying illustration was devised by us for the treatment of tuberculous disease of the hip, but can be used in many other cases in which extension of the lower limb is desired. It does not claim to be superior to those extension splints already on the market, but satisfies all the necessary requirements at a very moderate cost, and thus falls within the reach of many hospital patients who would otherwise have had to be content with a Thomas splint, patten, and crutches. The various parts of the splint are well shown in the illustration, and it is therefore not necessary to describe them, except to mention that the thigh-, leg-, and foot-pieces are made of pexuloid. The figure shows a lower limb with the splint in position before extension has been made. After extension has been applied the knee-joint is locked and the patient is ready to walk.



It will be seen that the splint is built in two sections, in the upper of which is incorporated the pelvis and in the lower the foot, so in order to put the limb under tension it is only necessary to force the two sections firmly apart. To make extension the bars are drawn forwards in front of the knee, swinging on their pivots (A, B), and are fastened together by fitting the pegs into appropriate holes; several trials may be required to determine which hole shall be used. In this position the extension bars form a low triangle standing on the limb as base, and since any two sides of a triangle are together greater than the third, it follows that when the bars have been pushed back into alignment the base of the triangle will have become stretched to a length equal to the combined lengths of its other two sides, and this effect will be more or less pronounced in proportion to the height of the triangle. Powerful extension may thus be obtained, and it is well to begin by using the highest pair of holes, since these are often found to give all the extension needed; but later on, through loosening of the thigh-piece, stretching of the anklet, and such causes, lower pairs of holes will be required. When the bars have been locked together in alignment by the running lock (E) they are screwed firmly down to steel strips on the sides of the thigh- and leg-pieces at C, D, in order to give greater rigidity to the splint.

As thus described, the splint is seen in its fundamental form in which it is admirable for hip disease. When used for the treatment of other conditions involving contracture of joints the addition of certain accessories may be required; thus it is a simple matter to add an elastic toe-elevator for foot-drop or an anterior steel or elastic accumulator for the straightening of a flexed knee.

The splint has been made for us by Longmates Limited, of Weymouth-street, London, and has proved to be eminently satisfactory.

R. C. WINGFIELD.
S. H. ROUQUETTE.
St. Thomas's Hospital, S.E.

THE LANCET.

LONDON: SATURDAY, DECEMBER 2, 1916.

The Session of the General Medical Council.

THE General Medical Council began its second session of the year on Tuesday last, when Sir DONALD MACALISTER, in his presidential address, summarised the position and activities of the medical profession in the critical present days. After referring to the losses which the medical profession has sustained in personnel, family, substance, hopes, and prospects—matters which are all painfully familiar to our readers—he explained what had been done up to now for maintaining the supply of male medical students in training for commissions in the Navy or Army. A census of students in attendance on professional instruction in the schools of the United Kingdom, as submitted to the Army Council and an Emergency Committee of the General Medical Council, shows the following analysis:—

	Men.	Women.	Total.
First-year students ...	1422	636	2058
Second-year students ...	783	295	1078
Third-year students ...	519	163	682
Fourth-year students ...	1078	145	1223
Final-year students ...	922	140	1062

Of these students, 500 of the juniors were under 18 years of age in May, 1916, but all the others were above that age. The students in the fourth and final years have already been directed by the Army Council to pursue their medical studies, so that the working of the Military Service Act is practically concerned with students in the second and third years. Sir DONALD MACALISTER explained that he had called the attention of the military authorities to the danger of further depletion at this place. As a result, the Army Council has issued orders that registered medical students not classed as "fit for general service" are to be relegated to the reserve, on condition that, while left to pursue their professional studies, they enrol themselves in an Officers Training Corps. On similar representations being made to the Admiralty, that Service, said Sir DONALD MACALISTER, recognised the importance of the problem to be solved, and, so far as existing conditions permit, both the War Office and the Admiralty will attempt to adjust in a satisfactory manner the conflicting claims upon the youth of the nation who are intending to follow a medical career.

The President of the General Medical Council made an important statement upon the supply of qualified practitioners needed by our ever-growing Forces, quoting a letter received at the opening of the Session from the War Office, in which that department said that they "would gladly engage 400 more medical practitioners to-morrow if they were forthcoming." He explained the work which the Central Committees now established in England and Scotland had done for the purpose of assisting the Government and the medical profession in securing the proper allocation of the available men. As every medical practitioner of military age who is fit for service is liable to be called to the combatant ranks, unless he receives a commission as a medical officer in the Forces or is exempted by one of the Central Committees, which are professional as well as statutory bodies, the responsible and delicate nature of the work of these Committees is evident, and in that work certain members of the General Medical Council have played an active part. This is as it should be, for the duties of the Central Committees are twofold: they have to consider the respective requirements of the Navy, the Army, and the civilian population, and while deciding who can be spared from civil practice, they have also to consider schemes for the protection of the interests of those whom, to a certain extent, they may be regarded as having recruited for active service. We published in THE LANCET of Nov. 11th (p. 844) the procedure which is recommended by the Central Medical War Committee for England and Wales as one under which the medical practitioners remaining behind could coöperate alike in carrying on the medical work of the country and in protecting the interests of their absent colleagues; but the scheme needs for its success the assistance of the profession at large if it is to accomplish its objects in any substantial way. There can be no doubt that such universal support has not been obtained. Letters which have appeared recently in the *Times* have sufficiently showed that some members of the medical profession "have not," to quote Sir DONALD MACALISTER'S words, "yet realised the duty and privilege of sharing the burdens of those who are bearing so much for us. ..... If the voluntary organisation of the profession, which has attained so gratifying a measure of success in this country, should by reason of their defection fail to meet all the requirements of the medical services, we may have to face some form of legislative compulsion for districts that are backward in their response to the calls of patriotism." And he went on to inform his audience, or rather to warn the medical profession at large, that the Council might obtain increased disciplinary powers better to deal with cases where individuals were ascertained to be defaulting from the duties imposed upon them by the national emergency.

In a third direction Sir DONALD MACALISTER spoke words of grave counsel to the medical profession. We have all become aware that in connexion with the organisation of the resources of the nation for naval and military service for the supply of munitions, and in regard to sick relief, pensions, insurance, and other circumstances of life to-day, there has arisen a heavy demand on medical men for certificates, a demand which is steadily increasing. The giving of these certificates caused no inconsiderable trouble to the medical profession before the war, and that trouble

has now been multiplied almost indefinitely. No doubt Sir DONALD MACALISTER is sympathetic with the general practitioner in this position, but as President of the General Medical Council he felt it his duty to warn the profession that the issuing of medical certificates was their privilege, implying a trust on the part of the State in the registered practitioner, and the trust carries with it grave obligations. We agree with Sir DONALD MACALISTER that as a whole these obligations have been faithfully observed and that medical certificates have been issued, as a rule, with a due regard to truth and accuracy; but he informed the Council that important Government departments had made representations which showed that this sense of responsibility had not been present in all cases of medical certification. He uttered grave words of warning to those who may stand in need of them. Of such we trust that there are not many, but charges of giving improper certificates are to be heard against practitioners this Session.

A Great National Scheme of Research.

A YEAR ago, when the Medical Research Committee of the National Health Insurance published their first annual report, we analysed with some particularity their activities, recording in detail the various departments of the work, what had been already done, and what the Committee expected to do. The work of the Medical Research Committee is now universally recognised; of the promised researches a large share has appeared in our own columns, and with this we may assume our readers' familiarity. Of the four permanent departments, that of bacteriology has been closely associated with work on wound infections and their prevention, a large part of which has passed into general surgical practice; that of biochemistry with the successful drug treatment of dysentery and bilharziosis; that of applied physiology with the solution of various problems concerning factory hygiene, poison gases, and trench foot; and the statistical department with the great business of army medical statistics. A new fifth department of clinical research has been added this year, under the general direction of Dr. THOMAS LEWIS, at the Mount Vernon Hospital, a building which, while remaining for the period of the hostilities under the control of the War Office, has now become the formal property of the Research Committee. The personnel of the Committee has changed owing to the statutory retirement of three members, Lord MOULTON, Sir CLIFFORD ALLBUTT, and Professor MATTHEW HAY, whose places have been filled by Lord GOSCHEN, Professor GEORGE MURRAY, and Dr. A. K. CHALMERS. The present report is signed by Major WALDORF ASTOR, who has become chairman, and by Dr. W. M. FLETCHER, the secretary of the committee. Lord GOSCHEN has accepted the treasurership.

The office work of the Committee now carried on at the Central Research Institute, 15, Buckingham-street, Strand, has been colossal. The Committee have been content with nothing less than obtaining a complete medical record of every man from the time that he is wounded or taken ill at the front until his final convalescence. During this time his case will have been recorded in the books of at least six different institutions, and the Committee at first carried out the task of extracting completely, by means of a small army of women clerks, the records on the registers of some 2000 military hospitals. A uniform card system in each hospital has now been designed to take the place of this thankless task, and the cards accumulated and sorted by the department already weigh over 15 tons. The expense of this work, although considerable, will be far more than compensated by the value of the consistent knowledge gained in connexion with granting pensions and allowances, for records can never be too full or elaborate while they are kept rigidly sifted, and the abuses of idle accumulation are avoided. Lack of such a contemporary record and the resulting impossibility of disputing fictitious claims is credited with having cost the American Government many millions of dollars at the conclusion of the Civil War, though the sum we have heard mentioned seems to us fantastic. The card system now adopted, although designed to make possible a medical history of the war complete in every particular, does not afford the means of immediate ready reference: accordingly a schedule system of cards and envelopes has been designed to obtain the current information which is urgently needed on such topics as abdominal wounds, amputations, trench nephritis, neurological cases, and the like. In addition to the written records, the basis has also been formed of a national collection of army pathological specimens at present housed at the Royal College of Surgeons of England under the care of Professor ARTHUR KEITH.

Most of the funds, as well as the scientific resources of the Committee, have been devoted to medical questions of immediate national urgency in war time. Certain pre-war work in connexion with tuberculosis, rickets, the hygienic relations of milk, and other matters has continued, but in greatly diminished proportion to the whole. The Committee justify this diversion of National Insurance funds to war problems by the statement that the solution of these problems will remain for the whole future of peace, and they have construed their labours in a large spirit which will entail the remote, if not the immediate, advantage of great bodies of insured persons. Support has been given to an organised inquiry into fatigue at factories and other medico-social problems, and the information gained has formed the basis of action of the Health of Munition Workers' Committee in framing measures for the material benefit of the vast army of munition workers. Arrangements have been made by the Committee for the physiological testing of salvarsan and its similars of French and British origin. This help not only meets a national need in founding an indispensable industry, but will materially assist the recommendations of the Royal Commission on Venereal Diseases which are being carried out in the State-supported schemes all over the country for the control of these diseases. Surprise has

been expressed in some quarters at the smallness of the funds at the disposal of the Committee and at the lack of the help of the Army machine at their backs. Mr. ROBERTS informed the House of Commons the other day that the amount of Insurance Funds paid over to the National Debt Commissioners at the end of 1915 was £30,000,000, and more recently that the amount paid out on account of the Medical Research funds for the year ending March 31st, 1916, was £53,375 18*s.* 7*d.* This is less than ½*d* in the £ of the total funds, and not along ago represented about 1 per cent. of the expenditure on the war for a single day. It would, however, be grossly unfair to judge the energies of the Committee by the amount of money which has been spent. Work of vast extent and importance has been set going in some cases at almost trifling expense. The disinfection of hospital ships, beginning with the *Aquitania*, by the use of electrolysed brine, which has resulted in abolishing secondary infections among the patients and the ships' staffs and crews, was carried out by a cell constructed at a few days' notice by Messrs. MATHER and PLATT, of Manchester, under Dr. DAKIN'S direction at their own expense. A second cell was taken over by the War Office and the whole expense of this incalculably valuable work consisted in the cost of the scientific direction supplied. The lack of direct military control, which has been deplored, has left the way open for this and other examples of generous private enterprise. Much of the work, too, has been of a kind which money cannot purchase. The Committee have been happy in their personnel, and both the retiring president and the permanent secretary have given services far in excess of the legitimate demands upon their time. The retiring members of the Committee retire only on paper, and continue to give to the work their interest and coöperation.

Annotations.

"Ne quid nimis."

THE PROBLEM OF THE DISABLED SOLDIER.

A CIRCULAR letter to the press, signed by Sir Frederick Milner and others representing the British Workers National League, welcomes the introduction of the Pensions Bill, commented upon in a leading article in THE LANCET of Nov. 18th, but regards it as only a belated step in the right direction. To certain points the letter calls particular attention and makes definite demands with regard to them, claiming that they require consideration immediately. With this we are entirely in accord. Whatever can be done, and is going to be done, for our broken sailors and soldiers should not be postponed for future consideration or performed grudgingly after the necessity for it has been urged upon the Government from outside. Generosity is shown by its readiness, but we ask for our disabled defenders not generosity but justice accorded spontaneously and not extracted by pressure. The concrete demands made in the letter referred to include one for a definite scale of pensions for definite disabilities, which might perhaps be found to possess drawbacks in practice, and the following may be taken as a brief summary of the remainder. It is asked that a minimum pension of 10*s.* per week, while incapacitated, shall be received by every man invalided out of H.M. Forces; that every man who has been duly passed into the Navy or Army as medically fit shall be deemed to have been so fit, and that every such man who has since been invalided out of the service for any disability or disease not caused by his own misbehaviour, shall be deemed to have had such disability or disease caused or aggravated by his service. It is further asked that in the case of loss of nerve or reason those affected shall be maintained in special homes at their country's expense, or that, if admitted to asylums, they shall be paid for in like manner by the State, their pensions being handed to their dependants and not devoted to their maintenance. The last condition proposed is that a pension due for length of service shall not be taken into account in assessing a pension for disability or disease contracted on active service. We repeat what we have already said, that the cause of the disabled soldier should be treated as a matter of the gravest national importance, and we admit misgivings as to whether this has always been done upon parallel occasions. Certainly among the classes from which in the past the Army was recruited the general impression has been that after the South African War the disabled were not treated as justice, not to mention gratitude for their services, demanded. We need not go back further for precedents, but would rather that a fresh start were made upon an occasion which we believe should be treated as unprecedented. In his efforts on behalf of our disabled sailors and soldiers Sir Frederick Milner should find supporting him an overwhelming force of public opinion.

THE ALIMENTARY ASPECTS OF WHOLE-MEAL BREAD.

AN article in *Il Morgagni* of Oct. 27th by Dr. E. Bertarelli, professor of hygiene in the University of Parma, who has made a special study of the medical and economic aspects of food, is interesting to British medical men on the institution of food control in this country. Many physiologists remain sceptical as to the exact utility of the protein substances in a bread rich in bran. Nor is it sufficient to insist that by introducing bran into bread there is also introduced a higher percentage of organic nitrogen which is lost in white bread; it should also be shown that this nitrogen is really capable of being utilised. On this point there is discrepancy of opinion which blames the bran as exciting peristalsis, and causing slight but undeniable catarrhal inflammation of the mucous membrane of the small intestine, so that in consequence the utilisation of the nitrogen is in effect less than with the consumption of ordinary white bread. This accusation is especially levelled against a whole-meal bread prepared by softening the grains of wheat for a short time only and immediately afterwards grinding them in a machine which lacerates them and, by the addition of water, converts them into a homogeneous dough. Such a dough is not easily leavened, is but slightly changed, and is full of water and coarse detritus of hard bran. Nowadays whole-meal bread, or what is commercially sold under this name, is prepared in the same way as white or brown bread, using flour containing

about 90 per cent. of entire wheat. Complete utilisation of the grain is not a preconception of bigoted economists who desire at all costs to save fragments of alimentary substances from waste. It ought to be possible, without causing any harm to the organism, and by making use of the outer portion of the spermoderm of the grains, to use the protein substances existing in the bran. It ought not to be impossible to find some method by which the bran will have no harmful effect, even if it is used in the same relative quantity as it is present in the grains. Economists have no difficulty in showing that the utilisation of the whole grain effects a gain of even 15 per cent. in comparison with present methods, but in reality the question is how to make the bread in such a way that the physiological gain runs parallel to the economic. This is the point to which Professor Bertarelli draws attention in discussing the preparation of "natural" bread, in which the entire grains, or caryopsides, are soaked in water for a long time so that they undergo changes comparable to those which take place when barley is malted, affecting every part of them from the outer layers to the starch itself. By this means, he suggests, there takes place a partial hydrolysis of the cellulose and a separation, by maceration, of the different layers so that it is improbable that there would be left in the bread fragments of resistant and hard bran similar to what is found in a bread prepared from whole grains ground in the usual way. After baking, a good bread is produced which is rich in bran, but which, neither in appearance or taste, or in the presence of detritus of scaly fragments of bran, resembles some of the usual types of bread which are classified under the term of whole-meal bread. Moreover, leavening is absolutely perfect.

TREATMENT OF TYPHUS FEVER WITH AN ANTITOXIC SERUM.

FROM the Pasteur Institute at Tunis are reported the first results clinically obtained from the employment of a new serum in cases of typhus fever.[1] They are distinctly encouraging. The blood serum of patients convalescent from typhus fever and that of animals which have been experimentally inoculated with the virus of typhus fever, and which have recovered, presents for some days, usually the sixth to the tenth following the defervescence, definite protective properties against this virus. It is not possible to gain cultures of the organism in this disease, as it is not yet known, but it is possible to obtain and make use of the virus itself, and it has been found that the guinea-pig is especially sensitive to it. By inoculating such animals in a suitable manner the virus can be preserved indefinitely by passage from one animal to another. Because of the natural toxicity of the tissues and the phenomena of anaphylaxis, however, the treated serum cannot be directly used, but, fortunately, it has been found that emulsions of the spleen or the suprarenal capsules of these animals infected with typhus fever can be readily borne by the horse and the ass—can, in fact, be given intravenously and by repeated inoculations, and as these organs are found to be amongst the most virulent in the guinea-pig a means is thus gained of immunising both horse and donkey. To gain the antitoxic serum from the donkey, the animal receives intravenously, at three-day intervals, first three inoculations of the leucocytic deposit of 5 c.c. of the infected blood of the guinea-pig, then 18 inoculations of an emulsion of the crushed centrifugalised spleen; then 22 of a similar emulsion, but only crushed; and finally, after the 41st injection, there are added the products of the crushed spleen and an entire suprarenal gland. The animal, having submitted to 125 inoculations, all borne without inconvenience, is bled after the 30th, 60th, 80th, 99th, 105th, and 115th inoculations, and such serum is used for clinical purposes. In the first experiments with this serum upon the guinea-pig, the blood obtained at the 30th and 60th inoculations only was used. The results showed that where the typhus virus alone was injected into the peritoneal cavity of the animal typhus fever resulted, but if the serum was simultaneously given no rise of temperature or any symptom followed; if given the same day as the commencing pyrexia of the fever the infection was arrested; and similarly even a day or two later. The serum was next tried upon human cases, 38 in number; of these 22 were French and 7 were Serbians. Careful blood tests were employed to ensure that these cases were genuine examples of typhus fever. Of these treated cases there was only one death, and that was due to an independent complication. Such results contrast so favourably with the general death-rate of this disease as to warrant the claim that the serum is a valuable remedy. The following clinical notes are reported:—

(1) Temperature: The sustained pyrexial plateau typical of typhus fever was in all cases where the serum was given converted into large oscillations of temperature; in a fifth of the cases definite defervescence followed after one or two inoculations. (2) Nervous symptoms: In no cases were delirium, stupor, or prostration present; headaches or insomnia was quickly relieved; in but a few cases was there paralysis of the sphincters, which is usual in the second week of the disease. (3) General state: There was absence of the "typhoid state"; in no cases was there constipation, so frequent a condition in typhus fever; large quantities of urine, sometimes three or four litres, were passed; convalescence was more rapid. (4) Duration of the disease: The usually accepted length of typhus fever is 13 to 14 days; in this series of cases it averaged 11 days only. (5) Mortality: Most striking is the beneficial effect of the serum upon the death-rate, given by authorities as anything from 22 to 50 per cent.; in this small series the mortality was only 3 per cent.

Finally, some brief notes are given upon the manner of treatment. It is important to start treatment as early as possible, even in the "suspect" stage, and daily hypodermic inoculations of about 10 to 20 c.c. of the serum should be given up to the stage of defervescence. Detailed accounts and charts of all the cases are published, and it is hinted that further extensive observations will shortly be forthcoming.

[1] Dr. C. Nicolle and Dr L. Blaizot, Annales de l'Institut Pasteur, September, 1916, p. 446; and Arch. de l'Institut Pasteur de Tunis, September, 1916, p. 225.

FUMIGATION OF SHIPS AND BUILDINGS WITH HYDROCYANIC ACID.

Surgeon R. H. Creel, of the U.S. Public Health Service, in discussing the United States quarantine regulations has noted that they concern themselves with six diseases—cholera, typhus, smallpox, yellow fever, plague, and leprosy. For each there are specific regulations based on the known mode of spread, attention being given in case of cholera to the people and their food; in typhus and small pox to the people and their personal effects; in yellow fever to the people and their environment; in plague to rats and their parasites. Consequently, if there is question about typhus, yellow fever, or plague, there must be

endeavour to destroy lice, mosquitoes, rats, fleas, or possibly bed-bugs, and this will necessitate some kind of fumigation, either with sulphurous acid, carbon monoxide, or cyanide gas (hydrocyanic acid). The slow diffusion of sulphurous acid, the damage it does to cargoes of many kinds, and the difficulties of its preparation, have induced some to use carbon monoxide. Surgeon Creel thinks carbon monoxide unsuitable, as it must be produced in a tugboat fitted for the purpose, and so it is expensive; further, it has no smell, and gives no warning of its presence. He therefore decides in favour of cyanide gas, for which he claims many advantages. In the first place, its preparation from dilute sulphuric acid and pulverised cyanide of sodium or potassium is very simple and at the same time cheap, unless a high concentration of the gas is necessary; it is cheaper than sulphurous acid at any rate. Further its high rate of diffusion shortens the period of disinfection, a most important consideration where the delay of ships and their passengers is concerned, and its characteristic smell prevents accidents during disinfection. Surgeon Creel has been using cyanide gas at New Orleans for a year and a half in the disinfection of 180 ships and of many buildings in the city, with but one death, that of a stowaway. As the result of his experiments he gives the following as the necessary time of exposure of a ship's hold to cyanide gas of the strength noted to ensure the destruction of the vermin mentioned. The usual standard is 5 oz. of potassium cyanide or $3\frac{3}{4}$ ounces of sodium cyanide to each 1000 cubic feet of space in the hold.

—	Duration of exposure which kills.	Quantity of cyanide of potassium per 1000 c. ft.	Cost per 1000 c. ft.
Mosquitoes	15 minutes	4/0 oz.	¼d.
Fleas	15 ,,	2½ ,,	2d.
Bed-bugs	One hour	5 ,,	4d.
Rats	,,	5 ,,	4d.
Cockroaches ...	,,	10 ,,	8d.
Lice	Two hours	10 ,,	8d.

Fumigation generally lasts for one hour, but nothing is said of the time required for the necessary subsequent opening up of hatches and ventilation.

A CASE OF "BLOODY TEARS."

CASES of "bloody tears" are among the curiosities of medical literature. In the *Boston Medical and Surgical Journal* of Oct. 26th Dr. M. J Konikow has reported the case of a man, aged 50, who had been in good health except for attacks of slight epistaxis. An attack occurred which he and the members of his family could not control by ordinary means and Dr. Konikow was summoned. Blood was flowing freely from the right nostril. An anterior tamponade failed to stop it, merely directing the flow backwards. Complete stoppage was obtained only by combined anterior and posterior tamponades. A few minutes later large "bloody tears" began to run down the cheek from the right eye. Pressure upon the right nasal duct stopped this flow. Of course, the source of these "tears" was the blood that was caught between the tamponades and forced into the nasal duct. True sanguineous lacrymation—i.e., "bloody tears" produced directly by the lacrymal gland—must be extremely rare, if indeed it has ever occurred. In the Transactions of the Ophthalmological Society for 1890–91 Mr. F. R. Cross reported the case of a female, aged 21 years, who for several years had been suffering from bloody tears coming occasionally from the left eye. Excluding other sources Mr. Cross thought that the lacrymal gland was responsible for this phenomenon. Half a century ago Hasner reported two cases of "bloody tears," one in a girl of 13 who showed this symptom during the two years preceding her first menstruation; the other in a healthy young butcher in whom the cause of the trouble lay in a lentil-sized polypus of the upper conjunctiva.[1] S. W. Ochapowski reported a case of "bloody tears" which he attributed to the general hysterical character of the patient[2]—a sufficiently puzzling diagnosis.

VINCENZ CZERNY.

THE death of Vincenz Czerny last month, at the age of 74, has removed a surgeon of international fame and one whose personal qualities would have made him beloved as well as famous in any rank of life. The son of a pharmacist in a small Bohemian town, his early familiarity with lens and microscope in natural-history pursuits took him to Prague University, where he began to train as a biologist, and promptly showed his inventive faculty on the technique of section-cutting. At the age of 25 he was induced by Billroth to assist him in his surgical clinic, where he gradually gave up his histological work for the larger field of surgical operation. At 29 he accepted the chair of Surgery at Freiburg, working there with men like Kussmaul and Nothnagel, until, in 1877, when he was still only 35, he succeeded Simon in the new surgical clinic at Heidelberg, which proved to be his lifelong abode. Possessed of a ready pen and incisive style, and the author of 150 or more short practical papers, Czerny never wrote a systematic treatise, and his name, although associated with the first vaginal extirpation of the uterus and with cancer research in general, is known only to the specialist in connexion with numberless improvements in operative methods. His intestinal suture is, of course, in every student's text-book. Czerny was recognised as a surgical leader in his own country; he was president of the German Surgical Society in 1901, of the International Surgical Society in 1908, and from 1910 he was honorary president of the International Society for the Study of Cancer, to which position his work in founding the Cancer Institute in Heidelberg on the lines of institutes in Moscow and Buffalo richly entitled him. As a teacher Czerny fully recognised the value of *können* over *wissen* and worked for the revision of the German medical curriculum on practical lines. In so doing he held up English and American methods as worthy of imitation, as well as the effect of our General Medical Council in standardising medical education. In his intimate association with his staff and hospital patients Czerny showed a warm human sympathy which will make his loss acutely felt and his place hard to fill.

AT a meeting of the Section of Surgery of the Royal Society of Medicine, 1, Wimpole-street, W., to be held on Wednesday, Dec. 13th, at 5 o'clock, a paper will be read by Miss Francis Ivens, M.S., of the Hôpital Auxiliaire No. 301 à Royaumont, on a Clinical Study of Anaerobic Wound Infection, with an Analysis of 107 Cases of Gas Gangrene.

[1] Allgem. Wien. med. Zeitschrift, No. 51, 1859, and No. 1, 1861.
[2] Russky Wratch, 1902, i.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

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TUESDAY, NOV. 28TH.

THE General Medical Council commenced its winter session at its offices, 44, Hallam-street, W., Sir DONALD MACALISTER, the President, being in the chair.

The President's Address.

Sir DONALD MACALISTER, in his presidential address, referred to the death of two old and distinguished members of the Council, Sir William Henry Power and Sir Victor Horsley, while Sir Lauder Brunton, who has also died since the last meeting of the Council, had acted as a referee in pharmacology in connexion with the last edition of the British Pharmacopœia. The principal part of his address was taken up with a consideration of the maintenance of the supply of male students; with the needs of the Navy and Army and no less of the country for practitioners, and the work of the Central Committees, designed to meet those needs. He noted the increased demands for medical certification[1] and said that the giving of improper certificates would be a count in the charges against certain practitioners during the session, the charges being advanced in connexion with the alleged "covering" of women acting without qualifications as midwives. He pointed out that the Local Government Board had taken up the question of the scarcity of certified midwives in certain districts, and had issued regulations for subsidising local authorities and organisations undertaking to increase the supply, and for providing grants towards the remuneration of practitioners, who could do much to further in their own districts local schemes in support of the action of the Local Government Board.

With regard to unqualified medical practice, he said that in order to meet the evils disclosed by the report of the recent Royal Commission on Venereal Diseases fresh legislation would be needed, and Dr. Langley Browne, by a motion appearing in the programme of business, proposed, he said, to ask the Council to affirm that such legislation, to be effective, must include provisions restraining the treatment of venereal diseases by unqualified persons, and also provisions giving effect to the recommendations of the Select Committee on Patent Medicines, which the Council has already approved. The Council, added the President, is persuaded that fresh legislation is also required, in the public interest, to remedy the Dentists Act, 1878.

In connexion with the attempts made to protect our Forces and the public against danger through the indiscriminate use of drugs like cocaine Sir Donald MacAlister said: "As long as any unregistered and unqualified person may call himself a 'person practising dentistry,' or call his shop a 'dental surgery,' and in virtue of this assumption claim to be supplied with the drug from the nation's stock, so long will the best-intentioned efforts to regulate the supply or to restrict its use to instructed and responsible practitioners, encounter difficulties that may prove insuperable." He concluded by intimating that measures for the regulation of medical practice during the war had been adopted by the legislatures of Victoria, Nova Scotia, and Grenada; that a new law regulating medical practice in Japan having become operative last October, the qualifications of the Japanese Medical Colleges would be entitled to a place in the Foreign List of the Register; that Part II. of the Medical Act, 1886, had been applied to the Straits Settlements, where there are many capable Japanese practitioners; and that the qualification of the King Edward VII. College of Medicine in Singapore had been recognised for registration in the Colonial List.

Uncertified Midwives: Warning Notice.

The Council considered a draft warning notice which had been framed by the Executive Committee with regard to "covering" by medical practitioners of uncertified women practising as midwives. The notice was to be accompanied by a communication from the President. The communication and notice were in the following terms.

See leading article on p. 947.

General Council of Medical Education and Registration of the United Kingdom,
44, Hallam-street, Portland-place, London, W.

DEAR SIR,—As President of the General Medical Council, I have been requested by that body to bring to your special attention the provisions of the Midwives Act, 1902, and the Midwives (Scotland) Act, 1915, which (in Great Britain) prohibit any woman who is not certified under one or other of these Acts from habitually and for gain attending women in childbirth, *otherwise than under the direction of a qualified medical practitioner*. The importance to the public welfare of the effective administration of these Acts of Parliament cannot be overestimated.

In certain disciplinary cases which the General Medical Council have recently had to consider it has been shown that, notwithstanding the salutary provisions of the above-mentioned Acts, uncertified women have been in effect enabled to defy the law through the countenance, assistance, or connivance of qualified medical practitioners. This has been done either by practitioners paying perfunctory visits to confinement cases (attended by an uncertified woman), and signing certificates and kindred documents required by certain Acts of Parliaments—for example, in relation to National Health Insurance or Notification of Births—or by their countenancing in other ways the false pretence that the uncertified woman was acting under the direction of a qualified medical practitioner.

Conduct of this character is, in the opinion of the Council, discreditable in that it directly tends to defeat the due working of Acts of Parliament which are of the utmost importance to the welfare of the poorer classes, and therefore of the nation, particularly at the present time. The Council accordingly have issued a Warning Notice upon the subject, of which I beg leave to enclose a copy.

Your attention is called to the fact that the penal provisions of the Acts do not apply "to anyone rendering assistance in a case of emergency."

I am to add that the General Medical Council regard it as the duty of registered medical practitioners to coöperate with the constituted authorities in helping to secure the strict and effective administration of the Midwives Act.—I am, yours faithfully,

DONALD MACALISTER, President.

Draft Notice.

WHEREAS it is provided in the Midwives Act, 1902, and in the Midwives (Scotland) Act, 1915, that "no woman shall habitually and for gain attend women in childbirth otherwise than under the direction of a qualified medical practitioner unless she be certified under this Act";

And whereas it has been made to appear to the General Medical Council that certain qualified medical practitioners have, from time to time, by their countenance or assistance or by issuing certificates, notifications, or other documents of a kindred character, knowingly enabled uncertified women, on pretence that such women were under their direction, to attend women in childbirth, contrary to the law;

And whereas such conduct is, in the opinion of the Council, discreditable to the profession of medicine, and calculated to defeat the purpose of the Statutes made in the public interest for the protection of mothers and infants;

Notice is hereby given that any registered practitioner who is proved to have so offended will be liable to have his name removed from the Medical Register.

The PRESIDENT moved that the notice should be approved and circulated.

Sir J. W. MOORE seconded.

Sir F. CHAMPNEYS pointed out the necessity of securing that the Midwives Act should be administered so as to give the benefit to the population which it was intended to afford. It had undoubtedly lowered the mortality in childbirth in a very remarkable manner, but it had been administered with varying intensity in various parts of the country. It had been fully administered in some parts and comparatively neglected in others. The Local Government Board was alive to the situation and made it quite possible for any county council that wished to do so to obtain the services of a properly qualified midwife for a district.

Dr. NEWSHOLME said that "covering" of the practice of uncertified women by medical men should no longer be permitted. The Local Government Board had promised to give one-half of the total payment which was made by the local authority in obtaining municipal and county midwives where they were required, and where an adequate supply did not exist at the present time. They had also promised one-half of the fee where doctors were summoned in emergencies by midwives. The steps which had been taken since the last meeting of the Council had been very gratifying. There was no power to compel the local authorities to act, but they were waking up to the necessity of action.

The PRESIDENT said that if a medical man was called in in an emergency to a confinement case and found that the patient was being attended by an uncertified woman and notified that fact to the local authority he had done his duty. But if he tried to conceal that fact from the authorities and filled up certificates which did not reveal it, but purported to show that he was in charge of the case, then he laid himself open to the charge.

The motion was agreed to.

Treatment of Venereal Diseases.

Dr. LANGLEY BROWNE moved:—

That the President be requested to inform the Lord President that, in the opinion of this Council (*a*) any legislative measures dealing with

the prevention and cure of venereal diseases, to be effective in protecting the public health, must include provisions for restraining the treatment of such diseases by unqualified persons; and (*b*) the recommendations of the Select Committee of the House of Commons on Patent Medicines, which have now been endorsed by the Royal Commission on Venereal Diseases, should forthwith be adopted, and embodied in the proposed legislative measures.

He said that it was imperative that the Council should take immediate action in regard to this subject. Whatever was to be done in this matter might be done very soon, and it might be too late for them to have any voice at all. Unless the enormous amount of treatment of venereal cases by unqualified persons was stopped, he did not believe that the stamping out of these diseases in the country would be possible. The Council ought to urge on the Government that it should be made a penal offence for an unqualified person to treat venereal diseases.

Dr. NORMAN MOORE seconded, and the motion was unanimously agreed to. It will be forwarded to the Home Office as well as to the Privy Council.

Restorations to Medical Register.

The names of Ulick Joseph Burke and Maurice Edmund Arnold Wallis were restored to the Register.

WEDNESDAY, NOV. 29TH.

The sitting was occupied with penal cases.

THE CONTROL OF VENEREAL DISEASES.

SOME PRACTICAL POINTS IN THE TAKING OF SPECIMENS FOR DIAGNOSIS IN VENEREAL DISEASES.

I.

THESE brief notes have been written by Mr. CLAUDE H. MILLS, assistant surgeon to St. Paul's Hospital for Skin and Genito-urinary Diseases, medical officer in charge of the syphilis wards at Rochester Row Military Hospital, 1914–16. Their object is to help those who have not hitherto had a wide experience in this specialty to arrive at an early, rapid, and accurate diagnosis.

Urethritis.—1. *Profuse discharge.*—Thoroughly cleanse the glans penis, especially the meatus, with alcohol or methylated spirit, and wipe away the first bead of discharge that exudes and collect the second at the end of a clean slide, and draw out as in the preparation of a blood film. Be careful not to make the film too thick, and not to overheat in fixing. If a specimen is required for culture it is better to take same with a wire loop from the fossa navicularis—the lips of the meatus being kept separated the while—and transfer immediately to blood agar medium. In cases complicated by phimosis it is advisable first to administer a prolonged subpreputial irrigation (using roughly a gallon) of sterile water to remove the accumulations resulting from balanitis which is always present in varying degree. Dab preputial orifice with filter-paper till dry, and express discharge by firmly drawing a finger along under the floor of the urethra, from the bulb forwards and collect same at preputial orifice.

2. *Scanty discharge.*—When pus is unobtainable by above method a satisfactory specimen can easily be procured by using an Eyre's modification of Kelly's urethral speculum, having previously washed out the anterior inch of the compressed urethra with sterile water. This is especially valuable in procuring material for culture.

3. *Urethritis with no appreciable discharge at the meatus, but with evidence of same in urine.*—After cleansing the glans and meatus the patient should pass the morning urine direct into a sterile flask, or wide-necked bottle, without making contact with same. Giving a quarter of an hour to settle, remove sediment with pipette and transfer to centrifuge tube and thence to slide. If a centrifuge is not at hand, allow urine to stand for rather longer and transfer sediment direct to slide, remove excess of urine and slowly evaporate. Any large strands of muco-pus can be extracted from the urine with platinum loop and placed on slide for staining. The centrifuge is an advantage since time is saved and a cultural growth therefrom more readily obtainable. It should always be borne in mind that the longer gonococci remain in a stagnant urine, the more they tend to lose those characteristics by which we are able to differentiate them.

4. *Vaginal discharge.*—After a prolonged douche of boric lotion has been administered, the specimen should be taken from pus produced by drawing a finger along the floor of the urethra. In the absence of a hymen, a speculum should now be passed and a second specimen taken from the cervix uteri. It is practically useless to take a specimen from the discharge at the vulva, such is the variety of organisms present.

To obtain serum from a chancre.—Points to be borne in mind. (*a*) *S. pallida* are most abundant in the margin and in the deeper layers of the base of the sore. (*b*) *S. refringens*, *S. gracilis*, *S. balanitidis* will only be found in the exudate and superficial layers. (*c*) The ideal specimen should contain a minimum of blood cells.

Procedure: To clean the surface of sore, first apply a hot compress of normal saline; this will remove the scab of dried exudate if present. It will lessen hæmorrhage, and will in no way tend to devitalise the *S. pallida*. A *moist* sore, surmounted with a film of necrotic débris, is first cleansed by gently dabbing with absolute alcohol and then applying compress. The chancre should now be gently squeezed between the thumb and index finger of the gloved left hand; a rolling movement often helps. After the pressure is relaxed the serum will be seen to exude. Scraping the chancre will only be resorted to should this fail, since it usually produces hæmorrhage. If for immediate examination the serum should be placed on cover-slip either by direct contact or with a wire loop and mounted for dark-ground examination. If it is to be sent to the laboratory—possibly some distance—then the serum should be collected in a finely drawn capillary tube—shaken to the centre—and the ends sealed in the flame of a Bunsen or spirit lamp, care being taken not to heat the serum. Capillary tubes are easily prepared by drawing out ⅛ in. glass tubing at dull-red heat over a Bunsen or better with the bellows and flame for glass-blowing.

Lieutenant-Colonel L. W. Harrison, R.A.M.C., was the first to advocate the use of capillary tubes for this purpose. *S. pallida* will exhibit vigorous movements when put up in this manner for three days at least, and longer if the tube be kept in the dark at body temperature. I have not observed movements in *S. pallida* beyond eight days, but have seen *S. refringens* and *S. gracilis* quite active under dark-ground illumination up to the thirtieth day. The serum is easily driven out for examination on to a cover-slip by breaking one end of the capillary tube and heating from the other.

To obtain specimen by gland puncture.—Select a painlessly and discretely enlarged gland of "india-rubber" consistency, not one exhibiting the slightest tendency towards suppuration from mixed infection. I have never yet succeeded in detecting *S. pallida* in a gland showing this tendency in a syphilitic by puncture.

Procedure: Having shaved the region and painted the skin with iodine, insert exploring needle through same and transfix the gland. This can be verified by moving the gland with the needle when it is fairly impaled. One should should aim at placing the point of the needle well into the centre of the gland. Affix glass syringe and now inject 5–10 minims of normal saline, gently knead the gland for about a minute, and then slowly aspirate. The object of the saline solution is to clear the needle, and create a cavity, as it were, in which the point rests. Without the previous injection of fluid the needle becomes occluded by gland substance immediately negative pressure is applied. I have obtained far more gratifying results since I first devised this simple procedure. Release the suction before withdrawing the point of needle from the gland. This method provides sufficient fluid for several slides for dark-ground or other examinations, or for putting up in capillary tubes.

To obtain specimen from secondary syphilides of the skin.—Gently remove the epidermis over a macule or papule or the crust from a papulo-pustule with a spud, avoiding hæmorrhage. Compress with hot saline and apply vacuum with suitable-sized Bier's cup (heated test-tube or soda-water bottle answers equally well) to lesion for five minutes. Gentle squeezing after removing the cup will give sufficient serum for examination With an erythematous or roseolar rash blistering with liq. epispasticus overnight (the area should be covered with a pill-box to protect blister when formed) will provide ample clear serum for diagnostic purposes.

In taking specimens from lesions in the mouth and pharynx.—Here it is a wise precaution to wear goggles. Specimens taken should always be examined immediately where possible, since *S. microdentium*, which is so commonly present, is much more easily distinguished from *S. pallida* whilst alive and exhibiting vigorous movements. If circumstances necessitate the sending of a specimen to the laboratory, a warning

should be given to the bacteriologist as to its source. It is always more advisable to send a fluid specimen in a capillary tube than a dry film, because even when the spirochætes are dead it is possible for a microscopist, experienced in this work, to give an opinion with the dark-ground illumination. In a dry preparation it is practically impossible to distinguish between *S. microdentium* and *S. pallida* by staining methods, especially with the ground stains (Burri's, Harrison's, Congo red, &c.).

Taking specimens from the female: labial, glossal, and faucial lesions.—These can usually be thoroughly cleaned up, thereby rendering the presence of the microdentium—a surface contamination—less probable. Faucial lesions should receive a preliminary cleansing by prolonged gargling with plain hot water. The specimen is obtained by gentle scraping with a blunt triangular spud. This always requires dilution with normal saline before immediate examination or transference to a capillary tube.

Taking blood for Wassermann test.—A very convenient method is that employed in the Guy's Hospital Laboratory—viz., of receiving the blood into a test-tube fitted with a cork drilled with two holes. Into the one is fitted a 2-inch length of glass tubing, to which the needle for venipuncture is attached by a 6-inch length of rubber tubing. The other hole is merely to allow for the escape of air whilst the blood is flowing into the test-tube when the vein is punctured. This simple device obviates the spilling of even a drop of blood. It is easily sterilised. The sterile test-tube or other receptacle should always be moist within (steamed); this prevents clot clinging to sides, which frequently happens if tube is dry-sterilised. Send the *serum* only if specimen has to travel through the post in sealed ampoule. I would always advocate taking the blood by venipuncture, because (1) it provides practice in the puncturing of a vein, (2) ample serum is thus provided for one or more modifications of the test, or should an accident happen during the performance of same.

Lumbar puncture.—With few exceptions this can always be performed with little or no discomfort to the patient under local anæsthesia (preferably eucaine lact. 2 per cent., which is, unfortunately, now almost prohibitive). First infiltrate an area of skin to the size of a shilling exactly over the interspace selected. Now inject into the subcutaneous tissues, and lastly into the supraspinous and interspinous ligaments; 5 c.c. of solution will accomplish this. In making the puncture special care should be taken after perforating the ligamentum subflavum not to drive the point of the needle right across the canal, thereby impinging nerve fibres up against the anterior wall. Allow at least 2 c.c. of cerebro-spinal fluid to escape before collecting that required for examination, which should be as free from contamination with blood as possible. It is a good plan, therefore, to receive the fluid into a first and second test-tube and labelling them (*a*) and (*b*). The cytological examination and globulin estimation should be done at once; the Wassermann test, of course, can wait.

(To be continued.)

THE LONDON AND HOME COUNTIES SCHEME.

The Public Health Committee of the London County Council submitted their scheme for the diagnosis and treatment of venereal diseases to the Council last week. The scheme is a large one, as it includes the County of London (leaving out the City), the counties of Buckingham, Essex, Hertford, Kent, Middlesex and Surrey, and the county boroughs of Croydon, East Ham, and West Ham. For providing treatment centres and examining specimens sent for diagnosis from all these areas, provisional arrangements have been made with 11 out of 12 of the metropolitan hospitals with attached medical schools, and in addition with 4 other general and 6 special hospitals: The Great Northern Central, Miller General, Seamen's, West London; the New Women's, the South London Hospital for Women, the Great Ormond-Street Hospital for Sick Children, the Lock Hospital, St. John's Hospital (Leicester-square), and St. Paul's Hospital (Red Lion-square). Laboratory provision for Miller General and St. Paul's Hospitals will be made at two other hospitals. Kent County makes its own arrangements for pathological examinations. St. Bartholomew's Hospital remains with the City Corporation outside the scheme. The governing body of each hospital concerned is to appoint a committee from its staff to draft a scheme to carry out the special work, and when this scheme is approved to organise and superintend the arrangements, which include the provision of staff, of beds, of out-patient facilities, the supply of salvarsan, &c. to practitioners, the examination of specimens, and the provision of teaching facilities. Provision is to be made for the employment of some medical practitioners as clinical assistants and of some women doctors in clinics for women, while patients, if they are willing, are to be referred to their own doctors for continued treatment. The contribution of the various participating authorities to the cost of the scheme, which is estimated at £49,000 for a year, will be on the basis of estimated population. The scheme is to come into operation for an experimental year on Jan. 1st, 1917.

A deputation from the Metropolitan Counties Branch of the British Medical Association conferred on Nov. 23rd with the Public Health Committee on the form of the draft scheme before submission for acceptance to the County Council. Mr. E. B. Turner, Mr. W. H. F. Oxley, and Mr. Bishop Harman, representing the Branch Council, expressed their agreement with the general principles of the scheme indicating certain desirable modifications, in particular that in the new clinics a due proportion of general practitioners residing in the locality of the hospitals concerned should be appointed as clinical assistants. The chairman of the Public Health Committee replied that note would be taken of the points raised, some of which were already under contemplation.

CONFERENCE OF THE ASSOCIATION FOR MORAL AND SOCIAL HYGIENE.

A conference of social workers, including a certain number of Members of Parliament, medical men, and lawyers, met recently at the Caxton Hall, at the instance of the Association for Moral and Social Hygiene, to consider the control of venereal diseases, as now being undertaken. A discussion of the notification of these diseases elicited the view from the meeting, at which a number of women's organisations were represented, that any measures to this end should be applied impartially to the whole population, their probable direction, so far as any existing proposals went, being only or mainly towards women of immoral life. A resolution was carried recording the approval of the arrangements now to be made by the local authorities throughout the country "for the efficient free and confidential treatment of venereal disease without penal or deterrent conditions." The meeting endorsed at the same time the opinion of the Royal Commission that if venereal diseases are to be stamped out the moral standards of the community as a whole must be raised, and considered that both sexes should be treated equally in matters of public morals.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

THE following appointments have been notified:—Temporary Surgeons: R. B. Adams and S. Wilson to the *Vivid*. J. G. A. Fairbank to be temporary Surgeon.

ARMY MEDICAL SERVICE.

Colonel H. E. Cree is retained on the Active List under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. Holyoake is retained on the Active List under the provisions of Articles 120 and 522, Royal Warrant for Pay and Promotion, and to be supernumerary.

Major D. K. Smith, C.A.M.C., to be temporary Lieutenant-Colonel.

To be temporary Majors: H. J. Shirley and R. E. Crosse.

Temporary Lieutenants to be temporary Captains: M. Eager, A. Budd, M. J. Casserley, R. M. Wright, J. H. Legge, A. Muir, W. J. Macdonald, J. W. Frew, R. W. Stocks, F. Ritchie, T. M. Crawford, W. Hornsby, D. G. McRae, B. McDermott, F. Vause, W. G. S. Neely, J. St. P. Knight, G. S. Marshall, J. McMillan, A. Dick, A. R. Snowdon, J. K. F. MacLeod, W. P. Ker, J. F. Robertson, T. F. O'Kell, J. N. Meade, J. W. Bride, W. S. Edmond, D. Viliesid, W. M. Shepherd, D. Mann, A. F. Elliott, F. J. Ayre, D. R. Pike, J. McA. Scott, E. L. Matthew, W. A. Rees, R. S. Dickie, R. Forbes, D. S. Jones, H. K. Macdonald, C. C. Lord, C. C. Vigurs, W. Jameson, C. Bannigan, W. A. Ferguson, J. MacRae, T. H. Edey, W. D. Newland, C. E. Wilson, F. B. Julian,

J. A. R. Thompson, W. G. F. Johnson, A. C. Taylor, R. E. Thomas, E. P. Titterton, P. C. H. Ryan, M. L. Loveless, R. W. P. Jackson, R. T. Todd, W. R. P. McNeight, J. Ogilvie, A. E. Schokman, E. W. N. Wooler, A. G. H. Moore, S. McNair, J. Crawford, W. F. Walker, R. W. Macpherson, J. M. Ryan, L. S. C. Roche, A. Rutherford, T. C. Routley, D. W. F. Jones, L. T. Burra, C. C. Brewis, C. O. Jones, H. D. Woodroffe, G. Elmsworth, G. H. H. Russell, L. M. Webber, V. H. L. MacSwiney, A. R. Oram, A. B. Cardew, C. D. Walker, T. J. Ryan, A. E. Suttor, T. F. Saunders, D. McE. Kilgour. A. E. McKibbin, D. A. Warren, W. A. McLeod, C. R. Young, E. Bryceson, L. M. Breton, J. R. R. Ritchie, H. Tomlin, T. B. Williams, G. A. McLarty, W. B. Seaton, R. Home, H. Bourne, R. S. Jenkins, A. H. Morley, L. J. H. Oldmeadow, P. M. Turnbull, E. F. Reeve, R. E. H. Leach, G. W. Bereford, J. E. R. Orchard, E. D. Lindow, W. Bainbridge, E. R. Barton, R. G. Gordon, F. J. Lidderdale, J. R. Christian, A. Montgomery, W. D. Rose, D. F. O'Flynn, J. D. Dods, I. Flack, and H. D. Haworth.

To be temporary Captains: F. A. Anderson and C. H. Denham.

To be temporary Lieutenants: A. H. Burnett, S. J. McClean Bradshaw, C. G. T. Mosse, W. C. P. Barrett, R. Paul, J. T. W. Stewart, P. C. Prince, H. R. Grellet, A. H. Porter, I. Clarke, D. Cogan, B. H. Moore, T. F. Campbell, C. M. Roberts, W. L. Walker, Temp. Hon. Lieut. J. Fanstone, J. B. Ferguson, H. Kirkland-Whittaker, J. Bain, T. B. Stedman, Temp. Hon. Lieut. G. E. Spicer, F. O. Spensley, H. E. M. Baylis, H. D. Pollard, and A. Neville.

Temporary Captains relinquishing their commissions: W. M. Crofton, G. D. Laing, J. Spence, T. A. Rothwell, H. Meade, C. H. Treadgold, S. H. Gibson, P. C. Raiment, W. S. Milne, B. N. Murphy, A. de W. Snowden, A. G. Leitch, W. W. Mackarell, R. F. Yencken, J. C. Watson, H. B. Elton, C. W. B. Littlejohn, J. H. Dancy, C. H. H. Coetzee, and C. N. Le Brocq. W. A. Russell (on account of ill-health).

Temporary Lieutenants relinquishing their commissions:—A. M. Drennan, J. R. Boyd, P. H. Lang, G. Kirkwood, J. A. Pierse, G. S. Gordon, W. B. Drummond, S. F. A. Charles, G. F. Hegarty, F. S. Adams, S. C. Shanks, A. N. Haig, E. A. Bernard, R. C. L. Batchelor, S. W. McComb, J. Broomhead, A. F. G. Guinness, J. Raffan, H. Newsome, V. A. Chatelaine, R. G. Allen, T. H. Gibbs, E. W. S. Hughes, H. A. Lane, H. Topham, A. F. Fell, W. J. Chapman, H. E. Thomas, and J. S. Mitchell. E. D. Fountain (on account of ill-health).

SPECIAL RESERVE OF OFFICERS.

Lieutenants on probation confirmed in their rank: R. C. B. Ramsay and M. McG. Russell.

To be Lieutenants: W. J. M. White, from Glasgow University Contingent, O.T.C.; G. E. L. Simons, P. T. Jones, A. Rodd, L. Cunningham, F. N. Sidebotham, G. Day, T. B. Bailey, R. Moser, I. Aubrey, H. J. Duske, W. S. Brown, G. M. Kendall, L. Grey, and R. G. Simpson, from the University of London Contingent, O.T.C., E. O. Goldsmith, R. B. Hawes, and D. V. Murphy.

Major (Temp. Lieut.-Col.) J. H. P. Graham relinquishes his temporary rank on reposting.

Captain J. G. Wilson relinquishes his commission on account of ill-health.

TERRITORIAL FORCE.

London Casualty Clearing Station: Major F. W. Higgs to be Lieutenant-Colonel.

Lowland Field Ambulance: Major A. M. McIntosh, M.B., to be Lieutenant-Colonel and remain seconded whilst acting Assistant Director of Medical Services.

Yorkshire Mounted Brigade Field Ambulance: Major G. H. L. Hammerton to be temporary Lieutenant-Colonel whilst commanding a field ambulance.

Home Counties Casualty Clearing Station: Lieut. A. Wilson to be Captain.

London Field Ambulance: Capt. (temporary Major) J. H. Dixon to be Major.

Northumbrian Field Ambulance: Lieut. V. J. White to be Captain.

London Sanitary Company: Herbert Leopold Farmer to be Lieutenant.

TERRITORIAL FORCE RESERVE.

Major W. B. Mackay, C.M.G., from Attached to Units other than Medical Units, to be Major.

Captain J. H. Baldwin, from 1st London Sanitary Company, to be Captain.

DEATHS IN THE SERVICES.

Colonel Ernest Harold Fenn, C.I.E., late R.A.M.C., at Hagley, Worcestershire, on Nov. 24th, aged 66. He joined the Army Medical Staff in 1875 and later served with Lord Roberts's relief force to Kandahar (mentioned in despatches). He took part in the Sudan campaign in 1885, and eight years later with Sir Mortimer Durand's mission to Kabul (received the thanks of the Government of India). He afterwards served on the staffs of Lord Lansdowne and Lord Curzon in India.

VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING OCTOBER, 1916.

IN the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the 10 diseases specified in the table was equal to an annual rate of 5·4 per 1000 of the civil population, estimated at 4,310,030 persons in the middle of the year; in the three preceding months the rates had been 4·9, 4·0, and 4·9 per 1000 respectively. The lowest rates during the month were recorded in Kensington, the City of Westminster, Hampstead, Wandsworth, Lewisham, and Woolwich; and the highest rates in Holborn, the City of London, Bethnal Green, Stepney, Bermondsey, Deptford, and Greenwich. The prevalence of scarlet fever showed a slight increase over that recorded in the preceding month; this disease was proportionally most prevalent in Holborn, the City of London, Shoreditch, Poplar, Bermondsey, and Deptford. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals at the end of October was 1117, against 991 and 1007 at the end of the two preceding months; the weekly admissions averaged 160, against 120 and 143 in the two preceding months. Diphtheria was more prevalent than it had been in any of the seven preceding months; the greatest proportional prevalence during October was recorded in Fulham, Finsbury, the City of London, Bethnal Green, Stepney, Southwark, Deptford, and Greenwich. The Metropolitan Asylums Hospitals contained 1479 diphtheria patients at the end of the month, against 1236 and 1287 at the end of the two preceding months; the weekly admissions averaged 209, against 135 and 167 in the two preceding months. The prevalence of enteric fever showed no variation from that recorded in September; the greatest prevalence of this disease in October was recorded in Paddington, Chelsea, St. Pancras, Hackney, Holborn, Stepney, and Wandsworth. There were 39 enteric fever patients under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 35 in each of the two preceding months; the weekly admissions averaged 7, against 5, 5, and 7 in the three preceding months. Erysipelas was proportionally most prevalent in Kensington, Shoreditch, Bethnal Green, Stepney, Southwark, and Bermondsey. The 22 cases of puerperal fever notified during the month included 3 in St. Pancras, and 2 each in Fulham, the City of Westminster, Bethnal Green, Southwark, and Woolwich. The 16 cases of cerebro-spinal meningitis included 2 each in Kensington, Islington, Bethnal Green, Lambeth, and Camberwell. Of the 28 cases of poliomyelitis, 5 belonged to Camberwell, 4 to St. Pancras, 3 to Stoke Newington, 3 to Southwark, 3 to Bermondsey, and 2 to the City of Westminster.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several metropolitan boroughs, the deaths occurring in institutions having been distributed among the several metropolitan boroughs in which the deceased persons had previously resided. During the four weeks ending Oct. 28th the deaths of 3962 London residents were registered, equal to an annual rate of 12·0 per 1000, against 10·7, 10·6, and 12·0 per 1000 in the three preceding months. The death-rates during the month ranged from 6·7 in the City of London, 7·5 in Hampstead, 8·2 in Lewisham, 9·5 in Wandsworth, 10·1 in Camberwell, and 10·4 in St. Marylebone, to 13·1 in Deptford, 13·2 in Bethnal Green, 13·3 in Poplar, 14·5 in Shoreditch, 14·8 in Holborn and in Southwark, 16·0 in Bermondsey, and 16·8 in Finsbury. The 3962 deaths from all causes included 333 which were referred to the principal infectious diseases; of these, 26 resulted from measles, 11 from scarlet fever, 45 from diphtheria, 5 from whooping-cough, 10 from enteric fever, and 236 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded in Stoke Newington, Holborn, or the City of London; among the other boroughs they caused the lowest death-rates in Hammersmith, Hampstead, and Lewisham, and the highest rates in Finsbury, Bethnal Green, Southwark, and Bermondsey. The 26 fatal cases of measles were 37 fewer than the corrected average number in the corresponding period of the five preceding years; these 26 cases included 4 in Southwark, 3 in St. Pancras, 3 in Bermondsey, 3 in Woolwich, 2 in Poplar, and 2 in Camberwell. The 11 deaths from scarlet fever were 6 below the corrected average number, and included 3 in Stepney and 2 in Lambeth. The 45 fatal cases of diphtheria showed a decline of 11 from the corrected average; these 45 deaths included 5 in Islington, 5 in Lambeth, 4 in Bermondsey, 4 in Deptford, 3 in Fulham, 3 in Southwark, and 3 in Wandsworth. The 5 deaths from

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING OCTOBER, 1916.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1915.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.								Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	**4,310,030**	—	**623**	**824**	—	**43**	**1**	**22**	**219**	**16**	**28**	**1776**	**5·4**	—	**26**	**11**	**45**	**5**	**10**	**236**	**333**	**1·0**	**3962**	**12·0**
West Districts.																								
Paddington	131,397	—	22	23	—	3	—	—	8	1	1	58	5·8	—	—	—	—	—	1	9	10	1·0	114	11·3
Kensington	155,795	—	10	14	—	1	—	—	13	2	—	40	3·3	—	—	1	1	2	—	8	12	1·0	152	12·7
Hammersmith	118,559	—	17	18	—	—	—	1	3	—	—	39	4·3	—	1	—	—	—	—	2	3	0·3	105	11·5
Fulham	151,161	—	23	38	—	—	—	2	8	—	1	72	6·2	—	1	1	3	—	—	12	17	1·5	134	11·6
Chelsea	58,421	—	8	9	—	4	—	—	4	—	—	25	5·6	—	—	—	1	—	—	2	3	0·7	58	12·9
City of Westminster ...	135,104	—	9	14	—	2	—	2	3	—	2	32	3·1	—	—	—	2	—	1	3	6	0·6	125	12·1
North Districts.																								
St. Marylebone	100,260	—	12	16	—	—	—	—	6	—	—	34	4·4	—	—	—	1	—	1	3	5	0·7	80	10·4
Hampstead	81,760	—	10	4	—	—	—	—	4	—	—	18	2·9	—	—	—	—	—	—	1	1	0·2	47	7·5
St. Pancras	209,322	—	21	33	—	5	—	3	7	—	4	73	4·8	—	3	—	—	—	1	7	11	0·7	173	11·3
Islington	316,242	—	41	60	—	2	—	1	10	2	1	117	4·8	—	1	1	5	—	1	15	23	0·9	302	12·4
Stoke Newington... ...	50,527	—	6	12	—	—	—	1	3	—	3	25	6·4	—	—	—	—	—	—	—	—	—	47	12·1
Hackney	217,883	—	28	27	—	3	—	1	13	1	—	73	4·4	—	—	—	1	—	—	10	11	0·7	193	11·5
Central Districts.																								
Holborn	40,405	—	8	9	—	3	—	—	2	1	—	23	7·4	—	—	—	—	—	—	—	—	—	46	14·8
Finsbury	76,915	—	13	21	—	—	—	—	4	—	1	39	6·6	—	1	—	—	—	—	10	11	1·9	99	16·8
City of London	19,461	—	4	5	—	1	—	—	1	—	—	11	7·4	—	—	—	—	—	—	—	—	—	10	6·7
East Districts.																								
Shoreditch	103,627	—	21	24	—	—	—	—	9	1	1	56	7·0	—	—	—	—	—	—	12	12	1·5	115	14·5
Bethnal Green	120,207	—	23	37	—	2	—	2	11	2	1	78	8·5	—	1	1	1	—	—	14	17	1·8	122	13·2
Stepney	265,731	—	50	74	—	5	1	1	22	—	—	153	7·5	—	1	3	2	1	1	20	28	1·4	261	12·8
Poplar	156,247	—	33	26	—	—	—	—	11	1	—	71	5·9	—	2	—	2	1	—	10	15	1·3	160	13·3
South Districts.																								
Southwark	179,424	—	24	44	—	1	—	2	14	—	3	88	6·4	—	4	—	3	—	1	21	29	2·1	204	14·8
Bermondsey	117,188	—	25	27	—	1	—	—	12	—	3	68	7·6	—	3	—	4	—	1	16	24	2·7	144	16·0
Lambeth	284,188	—	48	54	—	2	—	1	5	2	—	112	5·1	—	1	2	5	—	—	17	25	1·1	273	12·5
Battersea	161,945	—	22	30	—	1	—	—	6	—	1	60	4·8	—	1	1	2	—	—	8	12	1·0	158	12·7
Wandsworth	312,249	—	46	35	—	3	—	1	7	—	—	92	3·8	—	1	1	3	—	1	8	14	0·6	227	9·5
Camberwell	254,385	—	37	37	—	1	—	1	13	2	5	96	4·9	—	2	—	2	1	—	9	14	0·7	198	10·1
Deptford	110,299	—	24	36	—	1	—	—	7	1	—	69	8·2	—	—	—	4	—	1	5	10	1·2	111	13·1
Greenwich	96,385	—	5	53	—	1	—	1	2	—	1	63	8·5	—	—	—	1	—	—	8	9	1·2	91	12·3
Lewisham	164,438	—	17	28	—	—	—	—	5	—	—	50	4·0	—	—	—	1	—	—	2	3	0·2	103	8·2
Woolwich	129,506	—	16	16	—	1	—	2	6	—	—	41	4·1	—	3	—	1	—	—	4	8	0·8	110	11·1
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

whooping-cough were only one-seventh of the corrected average number; 2 occurred in Kensington and 1 each in Stepney, Poplar, and Camberwell. The 10 fatal cases of enteric fever were 6 below the corrected average; they belonged respectively to Paddington, the City of Westminster, St. Marylebone, St. Pancras, Islington, Stepney, Southwark, Bermondsey, Wandsworth, and Deptford. The deaths from diarrhœa and enteritis among children under 2 years of age were 149 below the average; the greatest proportional mortality from this cause was recorded in Finsbury, Shoreditch, Bethnal Green, Southwark, and Bermondsey. In conclusion, it may be stated that the aggregate mortality in London during October from these principal infectious diseases was 41·9 per cent. below the average.

Obituary.

ADAM ROBERT TURNBULL, M.B., C.M. EDIN.

THE sudden death from cerebral hæmorrhage of Dr. A. R. Turnbull occurred on Nov. 17th at Colinton, near Edinburgh, where he had lived since his retirement from the post of medical superintendent of the Fife and Kinross District Asylum. He was 62 years of age.

Adam Robert Turnbull was a successful student at the University of Edinburgh, taking high places in his classes and gaining no less than ten medals as an undergraduate. He graduated M.B., C.M. in 1875 with first-class honours the Ettles scholarship, and became a resident physician in the Royal Infirmary. In 1876 he was appointed an assistant physician in the Royal Asylum, Morningside, under the late Sir Thomas Clouston. He here acquired a knowledge of asylum administration and the care of the insane, and succeeded Dr. Brown as medical superintendent of the Fife and Kinross Asylum at Springfield in 1881. He occupied this post and discharged its duties to the entire satisfaction of the district board till February, 1915, when he retired on a pension.

Dr. Turnbull was a highly valued member and officer of the Medico-Psychological Association. He was in 1910 chosen president of the association, but was obliged, owing to the state of his health, to resign the honour before it became necessary to undertake its active duties. He was largely responsible for the modern method of caring for insane sick male patients by the employment of female nurses entirely. In a new hospital which the District Lunacy Board were building in 1895 Dr. Turnbull designed a special sick room with easy supervision for this purpose. The arrangements were on a modest scale, and females were employed by day only, but the success of this departure formed the beginning of a great movement which, under the fostering care of the Board of Lunacy, spread over Scotland. Since the war began it has been adopted over the whole kingdom, adding to the comfort and well-being of the insane and to the military strength of the Empire by liberating male attendants from sickroom duties.

In his younger days he took a keen interest in cricket and was himself a capital batsman. Latterly he was fond of shooting and spent part of the autumn in Northumberland for that purpose. Shortly after going to Fife he married Miss Georgina Hughes, of Middleton Hall, Northumberland, who predeceased him many years ago.

A friend has sent us the following appreciation of Dr. Turnbull:—

Although possessing great intellectual gifts, Turnbull was of a retiring and unassuming disposition, and his rich stock of knowledge was never displayed for show or effect. His friends could, however, always depend upon getting from him thoughtful views on most subjects and sound judgment in difficulties of all kinds. He was a hard worker all his

life, as well as an efficient and a most conscientious one. It was characteristic of him that some years ago he should be found during an official visit at his post carefully discharging his duties when very seriously ill. Since then he has been a semi-invalid and he bore his afflictions with patience and fortitude. In private life Turnbull was a most gentle and amiable man, beloved by all and without an enemy. His consideration, often approaching deference, for the views and feelings of others was a perpetual lesson in courtesy and self-denial.

Correspondence.

"Audi alteram partem."

THE ETHICAL STANDARDS OF PANEL PRACTICE.

To the Editor of THE LANCET.

SIR,—All those who have read in your columns Dr. Mitchell Bruce's inspiring address to medical students must be glad to have noticed his assurance in a later issue that his somewhat obscure reference to the "panel" was not meant to bear the interpretation that some of your correspondents seem to have feared, and others to have hoped, that it bore. Even as amplified by his recent letter, Dr. Mitchell Bruce's warning to intending students cannot, I am afraid, be regarded as altogether free from offence to the section of the profession who are working under the National Insurance Act.

I have been closely associated with a large number of such men since the inception of panel practice, and I am bound to say that I see no evidence that a higher proportion of these medical practitioners are actuated by purely commercial motives than may be found, shall we say, amongst consulting physicians and surgeons. Dr. Mitchell Bruce says he had not panel practitioners in his mind when he deplored that he had good authority for saying that the panel as a public service has increased the instances of men entering the profession simply and solely to make a living out of it. But it is difficult to imagine what other basis his "good authority" can have had for his calculations. Dr. Mitchell Bruce has, I think, been misled by his authority, and I merely intervene to deplore the recent tendency for those who desire to promote or prevent changes in the methods of remuneration of the profession to make hints that such changes will cause improvement or deterioration in professional ethics. The highest ethical aim may actuate the man who takes a sixpenny fee in a surgery in the slums no less than the man who receives a cheque for a hundred guineas after a surgical operation. There will be men entering the medical profession "simply and solely to make a living out of it," whether the method of remunerating our services be a whole-time salary, a capitation payment, or a separate fee for every service rendered.

It is unfortunate that prominent members of the profession should provide material which enables unfriendly critics of medical practice to impugn our motives. It should be possible for our teachers to endeavour to inspire those who are entering medicine with the highest professional aims without running any risk of seeming to cast aspersions upon the motives of others.—I am, Sir, yours faithfully,

LAURISTON E. SHAW.

Park-square West, N.W., Nov. 26th, 1916.

ARE THE CLOTHES OF CANCER CASES SAFE FOR FURTHER USE?

To the Editor of THE LANCET.

SIR,—I have two patients with inoperable cancer of the cervico-thoracic region who have inherited and worn the clothes of relatives who died from similar growths in similar local positions, the one six years ago and the other eight. In the latter case the patient exhibits a striking replica of his late brother's growth. The absence of any weighty opinion in support of some definite interim procedure obstructs the carrying out of hygienic measures in dealing with cancer that are employed in conditions which are in many other respects the same. People are not willing to sacrifice the property of relatives who have died from a disease which they have been assured is solely due to "eating meat," or to "chronic irritation," or to a "birth-cell gone wrong."

There is no bacteriological proof that "cancer" is actually associated with a microbe. But clinically one gets abundant evidence of a something which superimposes itself upon tissues that have become devitalised through having had to carry on a lengthy state of warfare with certain chronic bacteria, playing the rôle of forerunner to more virulent microbes. Not only has a bacterial preparing of the way (by some such herald as that which is responsible for fibrositis) been a feature in every case that has occurred within my own practice during recent years, but also every local alleviation that I have managed to obtain has been thanks to the help of a remedy possessing bactericidal properties.

Personally, I have never seen a cancer case without sepsis somewhere, and as I do not consider sepsis from such a source to be free from the suspicion of harbouring the greater evil, I always make use of the argument in instituting a sanitary *régime*. I am, Sir, yours faithfully,

Upper Brook-street, W., Nov. 13th, 1916. ETTIE SAYER.

GRAVES'S DISEASE AND ELECTRICAL TREATMENT.

To the Editor of THE LANCET.

SIR,—May I be allowed to correct a printer's error in my letter on this subject in your issue of Nov. 25th? A sentence dealing with cerebral galvanism is there made to read as follows: "The positive pole is placed over the forehead and the negative on the back of the neck, and the patient holds a long bar covered with lint in both hands." The "and" after "neck" should read "or," the negative pole being held in the hands as an alternative to placing it on the back of the neck.—I am, Sir, yours faithfully,

F. HERNAMAN-JOHNSON.

Cavendish-square, W., Nov. 25th, 1916.

Dr. Edward Hasell, formerly one of Lister's house surgeons at King's College Hospital, and for 20 years superintendent of the Provincial Hospital at Victoria, B.C., has been appointed medical superintendent of the Convalescent Home for Returned Soldiers recently established by the Dominion Government in the old Royal Naval Hospital at Esquimalt and of its branches all over British Columbia and the Yukon. At a recent meeting of the Provincial Hospital Board Dr. Hasell's resignation was received with regret, and an appreciation of his "invaluable work and unfailing courtesy" was recorded in an address and presented to him, accompanied by a special honorarium.

A CONTROL BOARD TAVERN.—**The Central Control Board** (Liquor Traffic) have recently acquired the licences of four public-houses in the neighbourhood of the Small Arms Works at Enfield Lock, and on Monday last the first of these, the Greyhound Tavern, was opened by the Minister of Munitions, the Right Hon. E. S. Montagu, M.P. The inauguration was practical, for a menu was provided, and the men from the works sat down at midday to a substantial repast at a modest cost. The meal occupied less than half an hour, and general satisfaction was expressed with the arrangements. This departure will be watched with the greatest interest, as it promises to wipe out the reproach, too often justified, against the average public-house in this country, that it exists to supply liquor and has no attraction in the way of solid refreshment or social benefits.

IRISH DOCTORS OF MILITARY AGE.—**A new phase** has been reached in the controversy between the guardians of Omagh and Letterkenny and the Local Government Board for Ireland in regard to the appointment to positions in the Poor-law medical service of doctors of military age. At Letterkenny the Board refused to sanction either permanently or temporarily the appointment of a doctor 21 years of age, and threatened to surcharge the guardians in respect of payments made to him. The Letterkenny guardians have now questioned the legality of the position taken by the Board and consulted counsel on the matter. Mr. Denis Henry, K.C., M.P., has advised them as follows: "In my opinion the power claimed by the Local Government Board to reject the duly elected medical officer on the ground of his being of military age is not warranted by any legal principle"; adding that he "can find no provision enabling the Local Government Board to put a penalty in Ireland on any medical man over 21 years." He further has advised the Letterkenny guardians to hold a new election to the permanent office and to let the nominee proceed to discharge his duties with or without the approval of the Board. The guardians have decided to follow this advice.

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue :—

Killed.

Capt. H. Begg, R.A.M.C., was educated at Marischal College, Aberdeen, and qualified in 1905. He practised in the Aberdare Valley for two years, and afterwards came to Kentish Town, London, and was at one time clinical assistant at the Great Northern Central Hospital and Mount Vernon Chest Hospital. He joined the R.A.M.C. in April last year, and went to France the next month.

Capt. I. A. Clarke, R.A.M.C., attached Dorset Regiment, was educated at Edinburgh University, and qualified in April of last year. When the war broke out he was a medical student in his final year, and joined the Red Cross, seeing service abroad. After a few months he came home and qualified, and went back with a field ambulance, and later was transferred to the Dorset Regiment.

Capt. I. M. Brown, R.A.M.C., attached Royal Field Artillery, was educated at St. Paul's School and Downing College, Cambridge, and was a student at the London Hospital, qualifying in 1914. On the declaration of war he joined the R.A.M.C., and was invalided home from Gallipoli in June, 1915. Later he went to France, and was attached to the New Zealand Division, and afterwards to the Royal Field Artillery.

Surgeon J. S. Ward, R.N., qualified at Edinburgh in 1907 and practised for a time in Manchester, joining the Royal Navy in 1910.

Surgeon G. A. Walker, R.N., was educated at Epsom College and at the London Hospital, and qualified in 1912. He had held the appointment of house surgeon at the Royal Infirmary, Sheffield, and volunteered for service at the outbreak of the war, doing duty at Cromarty, Gallipoli, Tenedos, and elsewhere.

Died of Wounds.

Lieut.-Col. H. B. Connell, R.A.M.C., was educated at Birmingham University, and qualified at Edinburgh in 1902. He had held the appointment of house surgeon at the Birmingham General Hospital, and had the medal and clasp for service at Nandi in 1905-6, having joined the R.A.M.C. in 1904. He attained to his majority in 1915, and was appointed temporary lieutenant-colonel whilst in command of a field ambulance.

Died.

Lieut. P. R. Wariyar, I.M.S.

Wounded.

Capt. F. Irvine, R.A.M.C.
Surg. J. N. McB. Ross, R.N.
Lieut. J. B. Stevenson, R.A.M.C., attached Liverpool Regiment.
Capt. J. I. Lawson, R.A.M.C., attached Royal Lancaster Regiment.
Capt. W. A. Miller, D.S.O., M.C., R.A.M.C., attached Royal Fusiliers.
Lieut. H. P. Harpur, R.A.M.C., attached South Staffs. Regiment.
Capt. J. M. Young, R.A.M.C., attached Highland Light Infirmary.

THE HONOURS LIST.

The following awards to medical officers are announced :—

Distinguished Service Order.

Capt. (Temp. Major) Gerald Fitzgerald Rudkin, R.A.M.C.
For distinguished service in the field.

Major (Temp. Lieut.-Col.) Hugh Herbert James Fawcett, R.A.M.C.
For conspicuous gallantry in action and devotion to duty. He tended the wounded continuously for 72 hours. He has on many previous occasions done very fine work.

Temp. Capt. Donald Olson Riddel, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under intense fire, displaying the greatest courage and determination. Later, during a very heavy enemy bombardment, he walked up and down our trenches and administered to the wounded.

Capt. George Vincent Stockdale, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led his stretcher-bearers continuously for five days, under very heavy fire, and on several occasions rescued wounded men by himself. He has on many previous occasions done very fine work.

Military Cross

Capt. Richard Andrew Austin, R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. He has previously done very fine work.

Capt. Robert Eric Barnsley, R.A.M.C.
For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station. He tended the wounded under heavy hostile shell-fire when impossible to bring them to the dressing station.

Temp. Capt. Tobias Rustat Hemsted Blake, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He dressed the wounded for seven hours in an open trench under very heavy fire. Later, he tended the wounded in the open, displaying great courage and determination.

Temp. Lieut. George Bent Buckley, R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination. He was wounded.

Temp. Capt. Leeming Anderson Carr, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He continually led stretcher-bearers under very heavy fire, and on many occasions he himself rescued wounded men. He set a splendid example of courage and determination.

Capt. Charles Leopold Franklin, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He personally led parties of stretcher-bearers under very heavy fire, successfully rescuing and evacuating the wounded. He showed great courage and determination throughout.

Temp. Capt. Robert Masson Greig, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led a stretcher party under heavy fire, and personally superintended the collection and evacuation of the wounded for 30 hours. He displayed great courage and determination throughout.

Capt. Charles Frederick Hacker, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. Later, he rescued a wounded officer from "No Man's Land" under very trying circumstances.

Capt. Richard William George Hingston, M.B., I.M.S.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded continuously under very heavy fire at close range regardless of his own personal safety.

Temp. Capt. Patrick Joseph Lane, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He led parties of stretcher-bearers under heavy fire, displaying great courage and skill. He worked continuously for 48 hours, and was himself wounded. He set a splendid example to the men under him

Temp. Capt. George Barbour Macgregor, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. He has on many previous occasions done very fine work.

Temp. Lieut. Gerald James McGerty, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself very severely wounded, he supervised the work of tending to five other wounded men. He displayed great courage and determination throughout.

Temp. Capt. Timothy Meagher, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination throughout the operations. He has on many previous occasions done very fine work.

Temp. Lieut. Douglas Macleod Moffatt, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. He set a splendid example throughout.

Temp. Capt. William Morrison, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself wounded, he tended and dressed the wounded under very heavy fire, displaying great courage and determination.

Temp. Capt. Basil Newman Murphy, R.A.M.C.
For conspicuous gallantry and devotion to duty. Although himself wounded he tended and dressed the wounded under very heavy fire, displaying great courage and determination.

Capt. Arthur Herbert Norris, R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination. He has done very fine work throughout the campaign.

Capt. Harold Gordon Oliver, R.A.M.C.
For conspicuous gallantry and devotion to duty. He organised and led stretcher-parties under very heavy fire with great courage and determination.

Capt. John McCallum Orme, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination. Later, after his battalion had been relieved, he remained behind evacuating the wounded.

Temp. Capt. John McLean Pinkerton, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under heavy fire with great courage and determination. He has previously done very fine work.

Temp. Lieut. Samuel Pool, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He led his bearers through a heavy fire and collected a number of wounded in the open. He worked continuously for 48 hours, displaying great courage and determination.

Temp. Capt. Charles Derwent Pye-Smith, M.B., F.R.C.S., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under intense fire throughout the operations with great courage and determination. He has on many previous occasions done very fine work.

Temp. Capt. William Russell, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded of four regiments under intense fire, displaying great courage and determination. He set a splendid example to all ranks.

Temp. Capt. John Caruthers Sale, R.A.M.C.

For conspicuous gallantry and devotion to duty. He rescued many wounded men under intense fire by carrying them on his back, displaying great courage and coolness. He set a splendid example throughout the operations.

Temp. Lieut. Malcolm Sommerville, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination.

Capt. Thomas Ainsworth Townsend, R.A.M.C.

For conspicuous gallantry and devotion to duty. He displayed great courage and determination in rescuing several men who had been buried under heavy fire. On three previous occasions he has done very fine work.

Temp. Capt. John Wright Turner, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He worked incessantly by day and night, bringing in wounded from shell-holes and attending them in dug-outs. He displayed great determination and a total disregard of personal safety throughout.

Temp. Lieut. Reginald Fowke Williams, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He rescued a wounded man under very heavy fire. Later, although himself wounded, he continued to dress the wounded, displaying great courage and determination.

Temp. Capt. Eric Wordley, M.B., R.A.M.C., Devon R.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination. He set a splendid example throughout.

Temp. Lieut. Charles Stuart Wynne, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He worked all night tending and dressing the wounded in the open, thereby saving many lives. Later he carried out his fine work continuously for three days.

Capt. Douglas Dunbar Jamieson, Australian A.M.C.

For conspicuous gallantry and devotion to duty. With two drivers and a man he went with a sandcart to the left flank. He rescued two wounded men and loaded them into the cart under intense fire. Later, he searched the front for more wounded men.

Capt. Geoffrey Hampden Vernon, Australian A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under heavy fire displaying great courage and determination. Later, he remained out all night with a wounded man.

Capt. Henry Harold Argue, Canadian A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire, displaying great courage and determination throughout.

Capt. William Brown, Canadian A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded continuously for 48 hours under very heavy fire. He displayed great courage and determination throughout the operations.

Capt. Harold Wigmore McGill, Canadian A.M.C.

For conspicuous gallantry and devotion to duty. He tended and dressed the wounded under very heavy fire with great courage and determination.

Capt. Ronald Graeme Scott Orbell, New Zealand Medical Corps.

For conspicuous gallantry and devotion to duty. He tended the wounded under heavy fire with great courage and determination. On one occasion he carried two wounded men on his horse to safety.

Second Bar to the Military Cross.

Temp. Capt. William Howard Lister, M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty. He led his stretcher-bearers under intense fire, dressing and evacuating the wounded. He displayed great determination and an utter disregard for his personal safety throughout the operations. (The award of the Military Cross was recorded in THE LANCET of June 26th, 1915, and the first bar in THE LANCET of Oct. 28th, 1916.)

Bar to the Military Cross.

Temp. Capt. George D'Rastrik Carr, M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty. Although himself wounded he continued to tend and dress the wounded, displaying great courage and determination throughout. (The award of the Military Cross was recorded in THE LANCET of Feb. 5th, 1916.)

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Second Lieut. R. N. Heathcote, East Yorkshire Regiment, only son of Dr. R. G. Heathcote, of West Didsbury, near Manchester.

Lieut. J. M. T. Stock, East Lancashire Regiment, younger son of the late Lieut.-Colonel J. N. Stock, R.A.M.C., of Cheltenham.

Capt. I. M. Brown, R.A.M.C., attached Royal Field Artillery, younger son of Dr. M. Brown, of Upper Berkeley-street, London, W.

Lieut. A. J. Sells, Royal West Surrey Regiment, youngest surviving son of Dr. C. J. Sells, of Guildford, Surrey.

Second Lieut. A. M. M. Mackenzie, Seaforth Highlanders, son of the late Dr. A. F. Mackenzie, of Glasgow.

Lieut. J. H. T. Liddell, King's Royal Rifle Corps, elder son of Dr. J. Liddell, of Harrogate.

Second Lieut. R. D. French, London Regiment, eldest son of Dr. R. H. French, of North Finchley, London.

Second Lieut. L. H. W. McKisack, attached Royal Flying Corps, elder son of Dr. H. L. McKisack, of Belfast.

Second Lieut. R. M. Baskett, Cheshire Regiment, son of Dr. B. G. M. Baskett, of Rayleigh, Essex.

Capt. M. C. Browne, Royal Marines, youngest son of Dr. S. Browne, late Royal Navy, of Esher, Surrey.

I. Corry, Royal Fusiliers, fifth son of the late Dr. W. Corry, J.P., of Australia, and of Anerley, Surrey.

Capt. C. H. Dwyer, Worcester Regiment, elder son of Dr. H. H. Dwyer, of Kingswood, Warwickshire, and late of Hoylake, Cheshire.

Second Lieut. St. J. J. Giusani, Royal Dublin Fusiliers, son of Dr. J. Giusani, of Cork.

THE CHANGES IN THE NAVY.

In the House of Commons on Wednesday evening Mr. Balfour, First Lord of the Admiralty, announced the appointment of Admiral Jellicoe as First Sea Lord and the assumption by Vice-Admiral Sir David Beatty of the command of the Grand Fleet.

OFFICIAL WAR PICTURES.—For some months Mr. Muirhead Bone has been engaged as a commissioned officer in the British Army in France making drawings of places and incidents in the war for permanent record. Reproductions of some of these drawings will be published shortly, by authority of the War Office, in monthly parts, with appropriate letterpress. Each part will contain facsimiles of over 20 drawings, and the first will be published early in December with a preface by General Sir Douglas Haig. Mr. Muirhead Bone has enjoyed, among critics and collectors, a reputation rarely accorded in this country to an artist not working in the more popular mediums of oil and water-colour, and in no way associated with comic draughtsmanship. As an etcher he is ranked by many with Rembrandt, Meryon, and Whistler, many "states" of his plates reaching in the market sums seldom excelled by those of the old masters. Prior to the war the museums of Leipsic, Dresden, and Berlin vied with each other in obtaining examples of his art. But it is to his pencil work, by which he made his early success, that he owes his unique position in this country. It is no exaggeration to say that no one ever got so much out of a simple lead pencil in rendering architecture, light, or atmosphere: for other draughtsmen have usually employed a brush and sepia for themes of a similar kind. It is understood that Mr. Muirhead Bone visited the front in order to make drawings of ruined churches and other buildings, a task for which he was supremely fitted. But finding the humanity among the ruins even more suggestive, he has developed an hitherto unsuspected genius for figure drawing. While his work is to be published under the auspices of the War Office, the original drawings are to be deposited in the Print Room of the British Museum, already enriched by his art. The learned keeper, Mr. Campbell Dodgson, is, indeed, the great authority on Mr. Bone's artistic career and the author of an eikonography on the subject. Mr. Bone was born in 1876, and was educated at the Glasgow Art Evening School. He is a member of the New English Art Club. One of his rare oil paintings is the property of the Contemporary Art Society. In an age when "representative" art has fallen into disrepute, Mr. Bone has vindicated the principle that Nature, at least when rendered in black and white, is not quite so *red* or *square* as she is sometimes painted by other modern artists.

OBITUARY OF THE WAR.

MORGAN JAMES REES, M.D. LOND., D.P.H.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

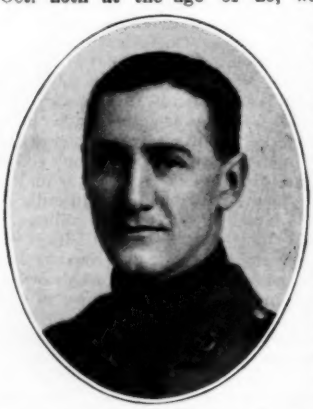
Captain M. J. Rees, who died on Oct. 30th, from wounds received in action, at the age of 41 years, was one of the medical inspectors of the Local Government Board. After qualifying in 1902, he held resident appointments at Guy's Hospital, was for some time assistant medical officer in the service of the Metropolitan Asylums Board, and commenced his public health career as assistant to Dr. A. Ashby, the medical officer of health of the county borough of Reading. He was then for some years medical officer of health to Aberdare urban district council until he joined the medical staff of the central public health authority in 1911.

Rees possessed sterling qualities which made him respected by all who came in contact with him. He did much good work as medical inspector of the Local Government Board, and his intimate knowledge of the Welsh language enabled him to conduct inquiries in his native country with conspicuous success. A record of some of the more important work that he did on behalf of the Board is preserved in the official reports which bear his name. That dealing with an outbreak of diarrhœa in the parishes of Blackwell and South Normanton, in the Blackwell rural district, associated with pollution of the public water-supply is a valuable contribution to epidemiology. Rees's untimely death is a source of profound sorrow to his many friends, but he died, as he would like to have died, sharing the hardships and mitigating the sufferings of the men who are fighting for the British Empire.

THOMAS CLATWORTHY KIDNER, M.R.C.S., L.D.S.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain T. C. Kidner, who was killed in action on Oct. 26th at the age of 26, was the youngest son of Wm. Kidner, of Stoke Holy Cross, Norwich. After matriculating from the Taunton School he qualified at the Royal Dental Hospital in 1912, being Saunders scholar for the year. He then studied at the Middlesex Hospital, gaining the Lyell medal and scholarship in 1914, and taking the Conjoint Board qualification in the same year. Shortly after the outbreak of war he received his commission in the R.A.M.C., attached to the Middlesex Regiment, and was gazetted Captain in March, 1915, when in France. Captain Kidner was an all-round man of a type specially useful in active service. He was a keen sportsman and at one time a member of the Kingston Rowing Club. His colonel writes of his popularity amongst his brother officers as well as with the men, adding that his place would be hard to fill.



CHARLES HENRY BENHAM, M.D., M.R.C.P. LOND.,

MAJOR, ROYAL ARMY MEDICAL CORPS.

Major C. H. Benham, who died at Malta on Nov. 8th, at the age of 42, was the son of Henry James Benham, of Ollon, Vaud, Switzerland. Educated at Queen Elizabeth's School, Ipswich, and London University, he took his medical course at University College Hospital, qualifying in 1897, and passing his M.D. Lond. some years later. He was also admitted a Member of the Royal College of Physicians of London. After holding house appointments at his hospital and elsewhere, he settled in practice at Brighton, where he became a familiar figure in the public and social life of the place. Attached to the R.A.M.C. at the outbreak of war, he served on the staff of the 2nd Eastern General Hospital until requisitioned for service in Salonica. Here the climatic conditions reacted unfavourably on a constitution not naturally robust, and he died as he was returning home on sick-leave. Major Benham had the confidence of his colleagues and took his full share in public work. He was chairman of the East Sussex Medical Committee, a member of the Hove Town Council and of its Education Committee, and also at one time chairman of the East Sussex Insurance Committee. He had also an extensive practice in Brighton and Hove, and held a number of appointments. He took special interest in the bacteriological problems of private practice and had published papers on the bacteriology and vaccine treatment of the common cold. Of genial and kindly nature, he was a man quick to make friends, and much beloved by his patients.

CHARLES MILL NICOL, M.B., CH.B. GLASG.,

CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain C. M. Nicol, who died of wounds received in action on Oct. 23rd, was the son of the late J. B. Nicol, of Greenock. Educated at Greenock Academy and Glasgow University, he graduated in 1909, and at once entered the R.A.M.C. He was stationed in England for a few years, gazetted Captain in 1912, and was in Egypt at the outbreak of war. Transferred home, he was sent to France in December, 1914, where his conspicuous merit quickly brought him under notice and he was appointed, and continued to act till his death, as Deputy Assistant Director of Medical Services.

Captain Nicol was only 29 at the time of his death, and had already shown promise of high attainment. The dean of his medical school writes of him as a good student, and a friend adds: "He was an outstanding officer from whom much was expected, and his early death has cut short a career which promised to lead him to the heights of his profession. Known and admired for his intellectual attainments, his gentle manners, and his athletic ability, the loss of Charles Nicol will be keenly felt in both official and social life." Captain Nicol was unmarried.

AUBREY WILLIAM VENABLES, M.R.C.S. ENG.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS.

Captain A. W. Venables, who was killed in action on Oct. 2nd at the age of 29 years, was the elder son of Wm. H. Venables, of West Hampstead, London. Educated at the South-Eastern College, Ramsgate, he entered the medical school of St. Mary's Hospital, qualifying in 1913.

He then held the appointments of house physician and house surgeon at his hospital. On the outbreak of war he volunteered for service, and obtained a commission in the R.A.M.C. He was first at Aldershot, then in a general hospital in Paris, and in November, 1915, was transferred to the Salonica Force, where he was attached to a field ambulance for nearly a year up to the time of his death.

From early youth Captain Venables's earnest nature had turned to the relief of others' burdens. His commanding officer writes of him as a brave and loyal officer and true comrade, and "C.R.H." writes in the *St. Mary's Hospital Gazette*: "His indifference to outward show and fearless outspeaking were the results of a depth of character, a quiet sense of humour, and an intense unshakable faith which would have led him to a noble future."

STATE COAL.

Until further notice the South Wales Coal Field has been taken over by the Board of Trade under the Defence of the Realm Act.

"AT THE WAR."—Lord Northcliffe's book under this title was published this week by Messrs. Hodder and Stoughton, price 5*s.* net. All profits from the sale of the book will be given to the joint War Committee of the British Red Cross Society and the Order of St. John of Jerusalem in England, at whose request the book was compiled from letters and telegrams written by the author during the war.

SCOTTISH BLINDED SOLDIERS: WORKING OF THE NEWINGTON HOUSE SCHEME.—At a meeting of the directors of the Edinburgh Blind Asylum on Nov. 27th the position of the Scottish scheme for blinded soldiers was explained by Mr. Somerville Grieve, the convener of the Blinded Soldiers and Sailors Committee, under which Newington House, Edinburgh, is managed. Mr. Grieve said that circumstances had arisen which necessitated some modification in the original scheme for the training and giving of aid to blinded sailors and soldiers, owing to the order having been issued by the War Office that all blinded soldiers must pass through No. 2 Clearing Hospital, Chelsea. They were now endeavouring to make arrangements whereby blinded Scottish sailors and soldiers might, if they so desired, begin their initial training in Edinburgh. Dr. Burns said that he had visited London with the object of suggesting coöperation with the institutions organised like their own; no encouragement was received. The Blinded Soldiers and Sailors Committee considered that no benefit would arise from centralising all efforts in London, and they had already experience of the infiltration into Scotland of a number of blinded, some of whom were partially trained, and others who wished to be near their own homes. Dr. Burns said that all these would have to be cared for at Newington House, and in all probability for a number of years, adding that one way in which an enormous saving of money could be effected would be to have all blinded Scottish sailors and soldiers sent direct to Craigleith Military Hospital, where they would be in touch with Newington House. Under such a scheme thousands of pounds, he considered, would be saved, and, what was of equal importance, full advantage would be taken of Newington House, and the Scottish national feeling would be satisfied.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—W. Andrew (Section I.), King's College Hospital; L. Baumgarten (Sections I. and II.), Berne and London Hospital; P. C. C. Fenwick (Sections I. and II.), St. Thomas's Hospital; G. H. de Kleyn (Section I.), Utrecht; S. G. Kastelianski (Section I.), London Hospital; C. de C. W. Langdon (Sections I. and II.), Manchester; and A. L. Watts (Sections I. and II.), Oxford and University College Hospital.

Medicine.—A. S. Green (Sections I. and II.), Middlesex; G. H. de Kleyn (Sections I. and II.), Utrecht; and R. Sinha (Sections I. and II.), London Hospital.

Forensic Medicine.—L. E. A. B. Farr, Cambridge and King's College Hospital; J. M. Forbes, Aberdeen; G. H. de Kleyn, Utrecht; and R. Sinha, London Hospital.

Midwifery.—J. Behesnilian, Charing Cross Hospital; G. W. Coombes, London Hospital; L. E. A. B. Farr, Cambridge and King's College Hospital; G. H. de Kleyn, Utrecht; S. Mikhail, Middlesex Hospital; and B. Ramirez, Guy's Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—L. Baumgarten and P. C. C. Fenwick.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Caxton Hall, Westminster, on Nov. 8th, Sir Francis H. Champneys being in the chair. A number of midwives were struck off the Roll, the following charges, amongst others, having been brought forward:—

The midwife not being scrupulously clean in person, clothing, and appliances, as required by Rules E. 1 (old rules) and E. 2 (new rules); not taking and recording the pulse and temperature of patients at each visit as required by Rules E. 13 (old rules) and E. 14 (new rules); not keeping her register of cases as required by Rules E. 23 (old rules) and E. 4 (new rules). That being in attendance at a confinement the midwife was guilty of malpractice in the following respect: she permitted another person to occupy the same bed as the patient during her lying-in. A patient suffering from illness with headache and sickness, the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 20; the patient being in the condition aforesaid, she did not hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might be immediately forwarded to the medical practitioner as required by Rule E. 20; and medical aid having been sought for the patient, she neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (a). A midwife having been in attendance upon a patient suffering from puerperal fever, she was guilty of negligence and misconduct in that without undergoing disinfection to the satisfaction of the local supervising authority, and contrary to the provisions of Rule E. 6, she attended a patient as a midwife in her confinement, and notwithstanding the warning of the local supervising authority continued so in attendance upon her. A midwife being in attendance at a confinement, she did not adopt the antiseptic precautions required by Rules E. 4 and E. 8; the child suffering from inflammation of, and discharge from, the eyes on the third day, and continuing so to suffer, she did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5). A midwife not keeping her appliances scrupulously clean, as required by Rule E. 1 (old rules) and E. 2 (new rules); persistently refusing to avail herself of offers made by the Inspector of Midwives to instruct her in the use of a clinical thermometer so as to enable her to comply with Rules E. 13 (old rules) and E. 14 (new rules).

A CENTENARIAN.—Mrs. Mary Paige, of Rochester, recently celebrated the 101st anniversary of her birthday.

THE SOCIETY OF EDUCATION'S INQUIRY.—The inquiry of a research committee of the Society of Education, the object of which is to collect from adults, by means of a questionnaire, information as to the ways in which they, as children, became aware of the facts of sex, birth, and parenthood, has already produced considerable response. The committee are classifying the results under a number of heads and are desirous of obtaining further replies. Forms should be filled in and returned anonymously to the committee, who also prefer, in the interests of the investigation, to preserve their anonymity. Applications for the questionnaire should be made to the secretary of the Research Committee, Society of Education, 9, Brunswick-square, London, W.C.

THE WALTER AND ELIZA HALL INSTITUTE OF RESEARCH IN PATHOLOGY AND MEDICINE, MELBOURNE.—Through the generosity of the trustees of the Walter and Eliza Hall Fund a research institute has been established in Melbourne in connexion with the Melbourne Hospital. The institute is controlled by a board representing the trustees, the University of Melbourne, and the Melbourne Hospital. A building of three stories has been erected at a cost of over £10,000 in immediate connexion with the pathological department of the hospital, which has itself recently been entirely rebuilt and now contains 325 beds. The office of director of the institute is vacant, and applications for the post are invited through the Agent-General for Victoria, Aldwych, Strand, London, W.C.

ROYAL HOSPITAL FOR INCURABLES.—The balance-sheet submitted at the annual meeting of this institution at Cannon-street Hotel on Nov. 24th showed that the income for the past year was £36,488 as compared with £31,186 in the previous year, but investments of £5,000 had to be sold in order to meet debts. This hospital does not receive any help from the Metropolitan Hospital Funds.

HOSPITAL SUNDAY FUND AT BRISTOL.—At the meeting of the Bristol Hospital Sunday Fund held recently, it was stated that the total collection for 1916 amounted to £2765, and of this sum £2606 had been allotted to the medical charities of Bristol. Approximately the average yearly collection for the Fund had been £2000, and the Lord Mayor (Dr. Barclay Baron) is making a strong effort to have a record amount for 1917.

DONATIONS AND BEQUESTS.—The late Mrs. Catherine Nash, of Eastbourne, left by will £5000 to the Middlesex Hospital and £500 to the Royal Medical Benevolent Fund.—Under the will of the late Mrs. Elizabeth Kirk Alston about £6400 will be divided among a number of medical charities.

ROYAL NORMAL COLLEGE FOR THE BLIND.—The governing body of the college have accepted the offer of the Carnegie United Kingdom Trustees to give £12,500 on condition that £25,000 are raised from other sources for the permanent endowment of the college. Cheques and money orders may be sent to Lord Burnham or to the Right Honourable W. Hayes Fisher, M.P., at the Royal Normal College for the Blind, Upper Norwood, S.E.

DURING the present session there are 78 women students attending the Belfast Medical School.

Colonel William Henry Bull, A.M.S., K.H.S., V.D., Inspector of the V.A.D. Hospitals, has been appointed one of the Deputy Lieutenants for Buckinghamshire.

AT the Royal Society of Arts (John-street, Adelphi) Mr. C. M. Whittaker, B.Sc., will lecture on the Coal Tar Colour Industry on Wednesday, Dec. 6th, at 4.30 P.M.

AT Knowle, Bristol, some of the residents have presented Mr. Harry François Devis with a cigarette-case and a case of pipes as a mark of respect on the occasion of his departure to take up military duties. Mr. Devis has four sons serving at the front.

THE NEW CHELSEA HOSPITAL FOR WOMEN.—This hospital was opened in Arthur-street, Chelsea, by H.M. the Queen in July last and has been in occupation for four months, greatly to the advantage of the patients. As soon as the new nurses' home can be built, that part of the hospital which is being used temporarily for the nursing and domestic staffs will be vacated and 23 more beds will be available for patients. This completion of the rebuilding scheme will have a marked effect on the long "waiting list" and improve the special facilities for admission which are being given to relatives of our sailors and soldiers. A sum of £25,000 is still required. Donations of £1000 to name beds in perpetuity as memorials may be made in instalments, and the amount now being spent in interest on the loan at the bank for the rebuilding fund would be very valuable for current maintenance in these days of advanced prices. Donations and subscriptions will be received by the honorary treasurer, Mr. Sidney H. Goldsmid, or by the secretary, Mr. Herbert H. Jennings, at the hospital.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Board of Pensions Bill.

THE Board of Pensions Bill will probably be radically altered in its progress through the House of Commons. In the course of the Committee stage on Monday Mr. HOGGE moved the first of a series of amendments to secure the adoption of a unified, centralised pensions scheme. Mr. HENDERSON, who is in charge of the Bill, accepted an amendment in the direction of unification, and it is understood that a Pensions Minister will be appointed, advised by assistant secretaries of the several departments concerned.

HOUSE OF LORDS.

TUESDAY, NOV. 28TH.

Military Patients in Civil Hospitals.

Lord DEVONPORT asked the Under Secretary for War in the House of Lords on Tuesday last whether representations had been made to the War Office by hospitals as to the inadequacy of the grant *per capita* for the maintenance of military patients in civil hospitals agreed to at the commencement of the war.—Lord DERBY replied that with reference to the three shillings grant to auxiliary departments, new arrangements were being made with the joint War Committee of the Red Cross and the Order of St. John, as a result of which a new grant of sixpence a day would be made under certain conditions for every unoccupied bed. He added that owing to the improvement in the administration of hospitals of late there had been an actual decrease in the cost per bed during the last six months in spite of the general rise in prices.

HOUSE OF COMMONS.

WEDNESDAY, NOV. 22ND.

Westenhanger Camp.

Mr. R. MCNEILL asked the Financial Secretary to the War Office whether he had consulted the Law Officers of the Crown as to the legality under the Defence of the Realm Acts of the proposed conversion of Westenhanger Camp into a venereal hospital by the Canadian military authorities; and whether, in view of the doubtful legality of the scheme and the local opposition to it, he would give an assurance that the scheme now in abeyance should not be proceeded with until an opportunity had been given of discussing the question in that House.—Mr. FORSTER replied: It has been decided not to use Westenhanger Camp as a venereal hospital. The points mentioned in the question do not therefore arise. I must not, however, be taken as accepting my honourable friend's view that there would have been any want of legality in using the camp for the purpose indicated.

Body Shields.

Answering Mr. BYRNE, Mr. FORSTER wrote: I understand that the question of testing some of the body shields which are now on sale is being considered by the Ministry of Munitions.

THURSDAY, NOV. 23RD.

The Food Regulations.

Sir E. CORNWALL asked the Parliamentary Secretary to the Board of Trade whether he was considering the desirability of requiring bakers not to sell bread until 24 hours after it was baked; and whether he was aware that this course would not only add to the nutritive properties of the article but would enable baking to be done at any hour of the day, thereby saving labour and fuel.—Mr. PRETYMAN replied: It is known that considerable economy can be effected by not consuming bread until 24 hours after it is baked, and the publicity given to this view by my honourable friend's question will, I hope, tend to diffuse the knowledge amongst consumers. Enforced preventing of the sale of new bread has been found impracticable, mainly owing to the lack of storage accommodation in bakeries. The consumer is, however, not usually in the same difficulty.

Major NEWMAN asked whether the machinery at present in use in British flour-mills was capable of producing the new standard war-flour; and, if not, what immediate steps would be taken to avert a bread famine.—Mr. PRETYMAN answered: I am glad to take this opportunity of pointing out that in cases in which the adaptation of milling machinery so as to produce one uniform grade of flour presents serious difficulty, it will be sufficient if all the grades of flour produced are mixed together thoroughly and uniformly in preparing the flour for delivery. The process of manufacture of flour as dealt with in the Order will not be deemed to be complete until the flour is ready for delivery.

Mr. FELL asked whether the honourable gentleman would consider the question of the use of rice in this country from which the skin which contained the most nutritive portion of the grain had been removed by polishing by machinery; and whether he would forbid this polishing of the rice, which was only done to give it an additional white appearance, and compel it to be sold in its natural condition during the continuance of the war.—Mr. PRETYMAN replied: I have received other representations on this subject, which is receiving my careful consideration.

Mr. PENNEFATHER asked whether the honourable gentleman was aware that for purely sweetening purposes a wholesome substitute for sugar could be obtained from coal tar; and, in view of the scarcity and high price of sugar, would be take steps to encourage the manufacture and use of this home-produced substitute for an imported article.—Mr. PRETYMAN said in reply: I am aware that certain substances derived from coal-tar products may be used for sweetening purposes. The honourable Member, I think, knows that these substances possess no food value, and I am advised that it would not be practicable to extend their manufacture in this country at the present time to any material degree in view of the immediate demands on the capacity of the works which are producing explosives.

Nerve-strained Soldiers.

Sir E. CORNWALL asked the Financial Secretary to the War Office whether he was considering the importance of taking immediate steps to organise a scheme whereby officers and men sent home suffering from shell shock and nervous troubles could be given beneficial open-air employment on the land, thus supplementing the existing labour available for agricultural pursuits; and whether he would consider if such a scheme could be more advantageous and economical both for the State and the farmer by each sharing in the remuneration to be given to the men so employed.—Mr. FORSTER answered: The question is being considered.

After care of Disabled Soldiers.

Lord H. CAVENDISH-BENTINCK asked the Secretary for War if he had come to a decision whether or not the Army authorities would assume responsibility for the complete restoration to health of the disabled soldier; and was he aware that the state of indecision as to which authority in future was responsible, which had now lasted for several months, was having a paralysing effect on the development of schemes for the after-care of the disabled soldier.—Mr. LLOYD GEORGE answered: A scheme has been prepared and has now been submitted to the different authorities concerned for their remarks. I hope soon to be in a position to make a further statement.

London Insurance Committee and Medical Practitioners.

Mr. ALDEN asked the representative of the National Insurance Commissioners whether he was aware that the London Insurance Committee declined to pay the balance due to practitioners under their agreements in respect of the year 1915 unless a special form of receipt was signed relinquishing their legal rights under the regulations and otherwise; and whether he would take action to remedy this state of affairs, which was causing irritation and dissatisfaction to the doctors.—Mr. C. ROBERTS wrote in reply: *Primâ facie* it does not appear unreasonable that if payment is being made to practitioners of the balance of the remuneration due to them in respect of any particular year they should be expected to give a receipt in full discharge of such balance. I am, however, making inquiry into the precise form of receipt and discharge adopted by the Committee.

MONDAY, NOV. 27TH.

Unfounded Allegations about Indian Hospitals.

Major HUNT asked the Secretary for India whether his attention had been called to the bad and verminous condition of another military hospital in India, and as to the desire to keep down expenses without regard to the comfort and well-being of the sick and wounded men; and whether he proposed to take any action in the matter.—Mr. CHAMBERLAIN, in a detailed explanation, read a telegram from the General Commanding at Bombay, transmitted through the Commander-in-Chief, Sir Charles Monro, repudiating the charges, which appear to have been made anonymously.

TUESDAY, NOV. 28TH.

Payments for Examining Recruits.

Mr. COWAN asked the Financial Secretary to the War Office whether his attention had been called to the fact that certain Scottish doctors had been paid, for medically examining recruits, at the rate of 2*s.* 6*d.* each for the first 16 recruits with a limit of £2 for any one day, resulting, in some cases, in an average rate of less than 6*d.* per recruit, while other medical men had been paid at the rate of 2*s.* 6*d.* per head without any limit.—Mr. FORSTER replied: £2 is considered a fair maximum for a full day's work in the medical examination of recruits. Authority has been given to exceed this maximum in certain exceptional cases.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CHRISTOPHERSON, C., M.R.C.S., L.R.C.P. Lond., has been appointed to be one of the Medical Referees under the Workmen's Compensation Act, 1906, for County Court Circuit No. 50.

CULLEN, B. T., M.B., B.Ch. R.U.I., to be Certifying Surgeon under the Factory and Workshop Acts for the Ballyhalse District of the county of Cavan.

HOLLOWAY-OLVER, S., Dental Clinical Assistant to King George Hospital.

HUXLEY, FRANCES, M.D. Vict., Physician to the Ante-natal Department of Queen Charlotte's Lying-in Hospital.

LLEWELLYN, JOHN, M.R.C.S., Medical Officer for the St. Just District by the Truro (Cornwall) Board of Guardians.

MACKENZIE, MARION R., M.B., Ch.B. Edin., Medical Officer to take charge of the Maternity Centres in the county of Denbigh.

WINTLE, COLSTON, L.R.C.P., M.R.C.S., J.P., has been reappointed Chairman of the Health Committee of the Bristol City Council.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BIRMINGHAM EAR AND THROAT HOSPITAL, Edmund-street.—Clinical Assistant in Out-patient Department two mornings per week. Salary £50 per annum.

BIRMINGHAM GENERAL DISPENSARY.—Resident Medical Officer, unmarried. Salary £250 per annum, with apartments, &c.

BRADFORD, ROYAL EYE AND EAR HOSPITAL.—House Surgeon (non-resident).

BRISTOL ROYAL INFIRMARY.—House Physician. Salary at rate of £120 per annum, with board, &c.

DARLINGTON HOSPITAL AND DISPENSARY.—House Surgeon. Salary £200 per annum, with board, &c.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Female Resident Assistant House Surgeon.

GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Surgeon.

GRIMSBY COUNTY BOROUGH.—Female Assistant Medical Officer. Salary £350 per annum.

GUY'S HOSPITAL.—Female Assistant to Obstetric Surgeons in Department for Venereal Diseases. Salary at rate of £300 per annum.

LEEDS PUBLIC DISPENSARY.—Resident Medical Officer. Salary £200 per annum, with board, &c.

MANCHESTER CITY SANITARY COMMITTEE.—Medical Officer. Salary £350 per annum.

MELBOURNE, AUSTRALIA.—Director to Walter and Eliza Hall Institute of Research in Pathology and Medicine. Salary £800 per annum.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—House Physician and House Surgeon. Salary £80 per annum each, with board, &c.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Physician. Salary £200 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Pathologist and Registrar. Salary at rate of £80 per annum and lunch. Also Physician to Infant Consultation Centre.

RHONDDA URBAN DISTRICT COUNCIL.—Temporary Assistant Medical Officer of Health and School Medical Officer. Salary £350 per annum.

ROTHERHAM HOSPITAL.—Junior House Surgeon. Salary £150 per annum, with board, &c.

ROYAL COLLEGE OF PHYSICIANS, London.—Milroy Lecturer for 1919.

ROYAL NATIONAL ORTHOPÆDIC HOSPITAL, 234, Great Portland-street, W.—Resident Surgical Officer.

SHEFFIELD, ECCLESALL BIERLOW UNION INFIRMARY.—Assistant Medical Officer. Salary £200 per annum, with board, &c.

SHEFFIELD ROYAL HOSPITAL.—Ophthalmic and Aural House Surgeon, Casualty Officer, and Assistant House Surgeon. Salaries respectively £135, £130, and £120 per annum, with board, &c.

VENTNOR, ISLE OF WIGHT, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST ON THE SEPARATE PRINCIPLE.—Assistant Resident Medical Officer.

WALSALL AND DISTRICT HOSPITAL.—Female Senior House Surgeon. Salary £250 per annum, with board, &c.

WEST RIDING OF YORKSHIRE.—Two School Medical Inspectors. Salary £325 per annum.

Births, Marriages, and Deaths.

BIRTHS.

CLARK.—On Nov. 21st, at Wellington, Hereford, the wife of Henry Colbatch Clark, M.R.C.S., L.R.C.P., of a son.

CLIFF HODGES.—On Nov. 25th, at Elmsleigh, Princes Park, Liverpool, the wife of Captain W. Cliff Hodges, M.D. Cantab., R.A.M.C., of a son.

FITZWILLIAMS.—On Nov. 26th, to the wife of Captain Duncan C. L. Fitzwilliams, F.R.C.S., R.A.M.C., serving with British Red Cross—a daughter.

STRICKLAND.—On Nov. 25th, at Beckenham, Kent, the wife of Harold F. Strickland, F.R.C.S., Captain R.A.M.C., of a daughter.

MARRIAGES.

LIDDERDALE—GUY.—On Nov. 28th, at St. Margaret's Church, Lee, Captain W. Guy Lidderdale, R.A.M.C., to Dorothy Mary, only daughter of the late J. N. Guy, of Gosforth, Northumberland, and of Mrs. Guy, of Blackheath.

DEATHS.

ADLER.—On Nov. 27th, 1916, at 10, Bryanston-street, W., James Elrick Adler, F.R.C.S. Eng., aged 35, only son of the late Rev. James Alexander Adler. Greatly beloved by all who knew him. Interment at Abney Park Cemetery, Friday, Dec. 1st, at 1.30. Service at 12.15 at the Church of the Annunciation, Bryanston-street. No flowers. Colonial papers please copy.

BROWN.—On Nov. 15th, killed in action, Captain Ian Macdonald Brown, R.A.M.C., younger son of Dr. and Mrs. Macdonald Brown, Upper Berkeley-street, London, W., aged 28 years.

EVANS.—On Nov. 23rd, at Shrewsbury, George Jewell Evans, M.R.C.S., L.R.C.P.

GUNN.—On Nov. 19th, at 22, Fife-street, Dufftown, Norman Gunn, M.B., C.M., aged 43 years.

GUTHRIE.—On Nov. 13th, killed in action, George Watson Guthrie, R.A.M.C., of Lima, Peru.

TRAVERS.—On Nov. 24th, at London-road, St. Leonards-on-Sea, Otho Robert Travers, M.R.C.S., L.S.A., aged 64 years.

WARD.—On Nov. 13th, killed in action, Surgeon John Scott Ward, R.N., elder dearly-loved son of the late Rev. J. M. Ward, late Chaplain R.N., and Mrs. Ward, of Mount-row, Guernsey.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE "INALTER" VIAL FOR SERUMS.

THE Anglo-French Drug Company (late M. Bresillon and Co.), of Gamage Building, Holborn, E.C., are introducing some interesting biological products prepared under the immediate supervision of M. Merieux (late of the Pasteur Institute) in the Merieux Institute, Lyons, France. First may be mentioned a novel method of preserving serum in what is called the "inalter" vial. It is important to note that the adoption of this vial places at the disposal of the medical man a supply of active liquid serum ready for use at any time. So far the following serums are available by this method:—Antidiphtheritic serum, antitetanic serum, and anti-streptococcic serum. From the accompanying illustration the principle will be easily understood. There is an ordinary vial (A) sealed by a rubber plug. Attached to this plug is a tube of dry serum (1 gramme) which dips into carbolised water (9 c.c.). Not until the serum is required is the tube withdrawn and its contents emptied into the solution. The dried serum quickly dissolves, and the solution is then ready for use. The main advantage of this device is that the serum is kept in the dried state until it is required for use. B shows the "vial" with the dried serum tube withdrawn, the contents of which have been dissolved in the weak carbolised solution and the rubber plug replaced. Besides a specimen of this "inalter" vial there have also been submitted to us some antidiphtheritic tablets for use in prophylactic treatment, and an antidiphtheritic fluid is also prepared for topical application to the affected mucosa. Lastly, we have received a specimen of "para-tetanine" for use as a dusting powder, and employed as a precautionary measure in the form of a dry dressing on the wounded surfaces.

A PROPRIETARY "SYSTEM" OF INFANT FEEDING.

AN appeal has been issued in the public press on behalf of a standardised method of infant feeding and management, which it is stated has been employed with uniform success amongst the wealthy for the past 27 years. The method is claimed to be simple enough to be understood by any mother and applicable to any infant. Funds are desired to establish "an infant welfare centre" where the method may now be practised and taught for the general benefit of infants. Medical opinion will naturally be withheld until the nature of the "system" is disclosed and until its promoters disclaim the deduction that it is intended to replace breast-feeding. A secret method suffers from the drawback, inherent to all except the inventor, that its effects cannot properly be observed or its results tested. No "system" can introduce into the houses of the poor the personal care and hygiene available in those of the wealthy. The well-intentioned purchasers of such a "system" may find themselves in possession of a method which is already practised by medical men and the free heritage of the poor.

FEVER IN SOMALILAND.

Mr. Geoffrey Francis Archer, C.M.G., Commissioner and Commander-in-Chief of the Somaliland Protectorate, states in his report for 1915-16, just received at the Colonial Office, that the general public health during the year was satisfactory. At Hargeisa, in the western area of the Protectorate near the Abyssinian frontier, a fever, simulating relapsing fever, is rife among the natives. The medical officer in charge of troops, who has had opportunities of examining the blood of members of a Camel Corps Company stationed near Hargeisa, reports that his examination was negative as regards the *Spirillum obermeieri*, the causative agent of tick or African relapsing fever, but malarial parasites were found in the blood of six cases. All patients reacted to large doses of quinine, but convalescence was slow in most cases. The late medical officer in charge of troops, however, when reporting on relapsing fever at Hargeisa last year, stated that he had discovered the spirillum in the blood of patients. The total number of admissions to the hospitals at Berber, Bulhar, and Zeyla during the year was 924 and the number of deaths 41. Camp hospitals constructed of mat huts, erected on wooden framework, are in use in each of the towns as isolation hospitals.

No reliable information is available as to the Somali population in the Protectorate, but 300,000 is generally quoted as an approximate figure. The alien community in the three coast towns comprises about 741 Indians, 1850 Arabs, and 780 mixed population. The climate is chiefly remarkable for its very dry character. In the interior it is healthy throughout the year, as compared with the coast belt, where, during the "Khariff" season—i.e., from about the 1st June to mid-September—the atmospheric conditions are exceedingly trying for Europeans, the effect on the nervous system being most pronounced. During this period terrific gales of sand-laden wind are prevalent, and the heat is intense, the thermometer registering 105° to 115° F. in the shade, and seldom falling below 100° at night. Sickness is most prevalent, however, during the months immediately preceding and immediately succeeding the "Khariff." During the months of November, December, January, and February the climatic conditions on the coast greatly improve.

THE CHILDREN'S BREAD.

Mr. H. J. Hibberd's little pamphlet—"Our Children's Bread as it Affects National Health and Land Reform" (Messrs. J. R. Stevens, Brockenhurst, Hants. Price 3*d.*; post-free, 4*d.*)—appears at an appropriate time, as it calls attention to the waste of valuable ingredients which occurs when the process of separation is carried too far in the preparation of flour. Arguing from the connexion between beri-beri and the use of "polished rice," Mr. Hibberd proposes a recasting of the standard of cereal foodstuffs on the principle of their vitamine content. This, of course, is going very far in the present state of our knowledge, but he will be pleased to see that under the new Regulations for the Control of Food the presence of vitamines in the flour should be secured. Commenting upon the extent to which we have relied for our food upon foreign sources, purchasing a considerable proportion of many things which can be produced in this country, he asks for the adoption of a co-operative system under which such food products as eggs, poultry, bacon, butter, cheese, fruit, and vegetables could be sent to collecting depôts and distributed through special centres at fixed prices. The times we live in, while they may indicate clearly the need for some such organisation, are not, of course, convenient for the construction of elaborate transport arrangements, and we do not see much hope at the moment for the recommendations in Mr. Hibberd's pamphlet, sensible as many of them are. Something of what he suggests may follow from the new State control of food.

The baking at home of bread, rolls, scones, and cakes has long figured prominently in cookery demonstrations by "The Pudding Lady" and her colleagues of the National Food Reform Association. Full particulars of publications dealing with the making of bread, its proper and economical use, and with the impoverishment, adulteration, and bleaching of flour, as well as of cookery classes—public or private—may be had by sending a stamped addressed envelope to the Honorary Secretary, 178, St. Stephen's House, Westminster, S.W.

OZONE IN RESPIRATORY DISORDERS.

REFERRING to an annotation published in our issue of Nov. 18th on "Tickling Cough," Messrs. Ozonair, Limited, of 96, Victoria-street, London, S.W., who supply ozone apparatus suitable for the purpose, have directed our attention to an interesting paper on "Ozone, Its Physiological and Therapeutical Action," by Dr. Donatien Labbé, Paris. Amongst other things, it is pointed out that ozone gives considerable relief in many cases of respiratory troubles. Instances are quoted also in which ozone has been shown to be of decided value in the treatment of whooping-cough. Details of treatment and of the issues are given in Dr. Labbé's paper.

R. G.—The Treasurer of the Belgian Doctors' and Pharmacists' Relief Fund is Dr. H. A. Des Vœux, 14, Buckingham Gate, S.W.

F. P. P. R.—The suggestion cannot be followed because to make compulsory a function which can only be discharged in certain physiological conditions would be impossible.

G. S. B. and Another.—Auto-examination of the lens and vitreous by means of a bright spot of light held a short distance before the eye was described by G. Donders (New Sydenham Society, 1864).

Panel Practitioner.—The case of the old-age pensioner, upon whom the present rise in the price of necessaries in many instances inflicts great hardships, has been considered by the Government. An additional allowance is to be given to supplement the weekly sum provided under the Old Age Pensions Act, the maximum increase permitted being

2s. 6d. Briefly, no allowance will be given which will raise the income of an individual above 13s. per week, or of a married couple above 20s. No additional allowance will be given to those who, by reason of their other means exceeding 8s. per week are in receipt of less than 5s. per week pension, and the scale of the allowance will vary from 6d. per week to the half-crown mentioned above. Applications will have to be based upon special hardships suffered by the applicant, and will have to be made upon forms which will be obtained at Post Offices or from pensions officers. The latter will investigate each case and report upon it to the committees or subcommittees concerned.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W

THURSDAY.—Papers:—Mr. J. T. Carter: The Cytomorphosis of the Marsupial Enamel-organ and its Significance in Relation to the Structure of the Completed Enamel (communicated by Prof. J. P. Hill).—Margaret Tribe: The Development of the Pancreas, the Pancreatic and Hepatic Ducts in Trichosurus vulpecula (communicated by Prof. J. P. Hill). Mr. S. A. Smith: The Fossil Human Skull found at Talgai, Queensland (communicated by Prof. G. E. Smith).—Mr. H. J. Watt: The Typical Form of the Cochlea and its Variations (communicated by Prof. D. N. Paton).—Dr. A. D. Imms: On the Structure and Biology of Archotermopsis, together with Descriptions of New Species of Intestinal Protozoa, and General Observations on the Isoptera (communicated by Prof. S. J. Hickson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Tuesday, Dec. 5th.

PATHOLOGY (Hon. Secretaries—Gordon W. Goodhart, Cecil Price-Jones): at 5 P.M.

Specimens:

Capt. Alfred R. Friel: Centrifugal Deposit of Urines showing "Amœba Urinal Granulata" Cells.

Communications:

Dr. Christopherson: A Large Salivary Calculus from Khartoum.

Mr. S. G. Shattock: Pseudotuberculoma Sillicoticum of Lip.

Mr. S. G. Shattock and Dr. L. S. Dudgeon: Attempts to Produce a Mixed Tumour.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.

MONDAY.—5 P.M., Howard Lecture:—Prof. J. S. S. Brame: Coal and its Economic Utilisation. (Lecture II.)

WEDNESDAY.—4.30 P.M., Paper:—Mr. C. M. Whittaker: The Coal-Tar Colour Industry.

RÖNTGEN SOCIETY, Institution of Electrical Engineers, Victoria Embankment, W.C.

TUESDAY.—8.15 P.M., General Meeting. Paper:—Dr. Levy and Mr. Stenning: Some Remarks upon Pastilles.

CHILD STUDY SOCIETY LONDON, Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY.—6 P.M., Lecture:—Dr. Constance E. Long: Psycho-analysis in Relation to Children.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Baldwin: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks), Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie). 3.30 P.M., Special Demonstration:—Mr. J. Howell Evans: Cases illustrating the Treatment of (1) Extensively Splintered Fractures; (2) Consecutive Osteomyelitis.

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

LONDON HOSPITAL, Mile End-road, E.

THURSDAY.—11 A.M., Dr. J. H. Sequeira: Early Diagnosis and Treatment of Syphilis. (Lecture III.) In connexion with this lecture Dr. J. McIntosh will give a Practical Demonstration of the Examination for Spirochætes and Wassermann Test.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY.—5 P.M., Chesterfield Lecture:—Dr. M. Dockrell: The Ringed Eruptions of the Skin.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITOR," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention should be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, *and when accompanied by blocks it is requested that the name of the author, and if possible of the article, should be written on the blocks to facilitate identification.*

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale, and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

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INCREASED war expenses and cost of production necessitate an increase of the price of THE LANCET. Commencing with the first issue in the New Year, the price will be 8d. instead of 6d. The rates of subscription will remain as revised in October—

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Newspapers are not at present being sent forward to neutral European countries unless posted direct from the office of publishers or newsagents who have obtained permission from the War Office for this purpose. The Publisher of THE LANCET has obtained the required permission, and he will forward copies direct from the Office to any neutral country on receipt of instructions.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 29th, 1916.

Date.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Tem.	Wet Bulb.	Dry Bulb.	Remarks.
Nov. 23	...	67	55	38	49	50	Cloudy
,, 24	0·03	62	58	50	53	53	Overcast
,, 25	...	74	56	45	53	53	Overcast
,, 26	0·15	73	54	41	39	41	Fine
,, 27	...	59	44	37	36	37	Fine
,, 28	...	56	44	32	32	33	Foggy
,, 29	...	50	47	33	44	44	Overcast

Other information which we have been accustomed to give in these "Readings" is withheld for the period of the war.

The following journals, magazines, &c., have been received:—Clinical Medicine, Archives of Internal Medicine, Archives de Médecine et Pharmacie Navales, South African Medical Record, American Journal of Orthopedic Surgery, Revista Clinica, Journal of Anatomy, Mercy and Truth, American Journal of Obstetrics, Magazine of the London School of Medicine for Women, &c.

Communications, Letters, &c., have been received from—

A.—Dr. M. S. Ayoub, Aga, Egypt; Messrs. Armour and Co., Lond.; Ashton-under-Lyne District Infirmary, Sec. of; Australia Institute of Tropical Medicine, Townsville, Sec. of; Association of Infant Welfare and Maternity Centres, Lond., Chairman of; Messrs. Allen and Hanburys, Lond.

B.—Capt. A. G. Biggam, R.A.M.C.; Messrs. Burroughs Wellcome and Co., Lond.; British Organotherapy Co., Lond.; Messrs. Butterworth and Co., Lond.; Mr. D. H. Baria, Dhrangadrha; Capt. J. S. K. Boyd, R.A.M.C.; Messrs. Blinko and Sons, Ramsgate; British Medical Association (Queensland Branch), Brisbane, Asst. Sec. of; Dr. John Brownlee, Lond., Messrs. Butterworth and Co. (India), Calcutta; Mr. H. Brown, Lond.; Mr. J. P. Barry, Lond.; Dr. G. Blacker, Lond.; Dr. W. A. Brend, Lond.; Mr. F. M. Boclet, Peterborough; Messrs. Belifante Bros., The Hague; Dr. B Bell, Liverpool; Birmingham Ear and Throat Hospital, Sec. of; Mr. W. Bryce, Edinburgh; Mr. E. Bougault, Paris; Sir John Byers Belfast; Rev. J. S. Barber, Farnham; Mr. F. J. Burdon, Lond.; Dr. H. Boshouwers, Oficina Alianza; Mr. K. S. Bhat, Lond.

C.—Dr. W. S. Carpenter, Lond.; Dr. S. D. Clippingdale, Lond.; Chelsea Hospital, Lond., Sec. of; Dr. Mary Coghill-Hawkes, Lond.; Messrs. J. and A. Churchill, Lond.; Mr. S. Cranston, Glasgow; Messrs. E. Cook and Co., Lond.; Messrs. Cornish Bros., Birmingham; Chief Postal Censor, Lond.; Mrs. Coltart, Exmouth; Central Medical War Committee, Lond., Secs. of; Central Committee for the State Registration of Nurses, Lond., Secs. of.

D.—Lieut. J. S. Dunn, R.A.M.C.; Mr. R. Donald, Lond.; Messrs. A. De St. Dalmas and Co., Leicester; *Dental Record*, Lond., Publisher of; Director-General of Public Health, Sydney; Mrs. Dawson, Oxford; Mr. J. Dunlop, Lond.; Darlington Hospital, Sec. of; Dumfries and Galloway Royal Infirmary, Dumfries, Treas. of; Rt. Hon. Lord D'Abernon, Lond.

E.—Erasmic Co., Warrington; Eccleshall Bierlow Guardians, Clerk to the.

F.—Mr. J. Fawcett, Cork; Lieut.-Col. C. G. Fagin; Mr. A. C. Fowler, Lond.; Messrs. Fannin and Co., Dublin.

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H.—Mr. S. Honeyman, Lond.; Dr. J. Haddon, Denholm; Dr. F. Hernaman-Johnson, Lond.; Messrs. J. Haddon and Co., Lond.; Messrs. Hirschfeld Bros., Lond.; Messrs. Hodder and Stoughton, Lond.; Mr. N. B. Harman, Lond. Dr. C. E. Hetherington, Londonderry; Dr. H. C. Highet, Bowdon; Dr. C. M. Haraton, Bexhill; Dr. F. Heatherley, Manchester; Dr. H. J. Hibberd, Brockenhurst; Dr. C. G. Hawthorne, Lond.; Messrs. J. F. Hartz and Co., Toronto; Messrs. C. J. Hewlett and Co., Lond.; Messrs. Holt and Co., Lond.

I.—Mr. Ingram, Dufftown; Mr. J. W. Ingles, Crieff; Insurance Committee for the County of London.

J.—Jeyes' Sanitary Compounds Co., Lond.; Mr. F. Jones, Lond.

K.—Dr. F. H. Kelly, Berkhampstead; Capt. T. Kelly, R.A.M.C.; The Kny-Scheerer Corporation, New York; Dr. A. Kinsey-Morgan, Bournemouth.

L.—Dr. G. C. Low, Lond.; Messrs. Lee and Nightingale, Liverpool; Messrs. H. K. Lewis and Co., Lond.; Livingstone College Hospital, Leyton, Principal and Hon. Resident Medical Officer of; Lieut. C. N. Longridge, R.A.M.C.; Messrs. Leathwaite and Simmons, Lond.; London Dermatological Society, Hon. Sec. of.

M.—Dr. H. B. Mills, Philadelphia; Capt. C. H. Mills, R.A.M.C.(T.); Mr. N. C. Macnamara, Lond.; Nurse M., Hanwell; Messrs. Z. P. Maruya and Co., Tokyo; Monmouthshire Asylum, Abergavenny, Sec. of; Maidenhead Union, Clerk to the; Manchester City, Medical Officer of Health of; Mount Vernon Hospital for Consumption, Lond., Sec. of; Messrs. C. Mitchell and Co., Lond.; Maltine Manufacturing Co., Lond.; Maruzen Co., Tokyo; Mr. J. Y. W. MacAlister, Lond.; Miss Norah March, Lond.; Mr. W. J. Midelton, Bournemouth; Mr. J. E. R. McDonagh, Lond.; Dr. D. M. Mathieson, South Shields; *Midland Counties Herald*, Birmingham.

N.—National Food Reform Association, Lond., Hon. Sec. of; Nobel's Explosives Co., Pembrey; Dr. A. Newsholme, C.B., Lond.; National Union of Trained Nurses, Lond., Hon. Sec. of.

P.—Mr. J. R. Purvis, Cambridge; Capt. J. L. Percival, R.A.M.C.; Fleet-Surg. A. M. Page, R.N.; Mr. E. A. Piggott, Clare; Lieut.-Col. G. R. Philp, C.A.M.C.; Mr. H. Pouncy, Dorchester; Mr. J. E. Passmore, Burbage.

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S.—Dr. E. N. Smith, Buxted; Messrs. Seabrook Bros., Lond.; Messrs. G. Street and Co., Lond.; Drs. Stassen and Voucken; Dr. A. H. H. Sinclair, Edinburgh; Smith's Advertising Agency, Lond.; Dr. R. H. Steen, Dartford; Dr. G. E. Shuttleworth, Lond.; Dr. B. H. Spilsbury, Lond.; Mr. A. M. Sheild, Budleigh Salterton; Dr. L. Shaw, Lond.; Society of Apothecaries of London, Sec of; Dr. C. Shearer, Devonport; Dr. W. Stokes, Calicut; Dr. J. A. Scott, Dublin; Dr. J. F. Smith, Lond.; Dr. S. Sloan, Glasgow; Dr. W. C. Sullivan, Lond.

T.—Messrs. W. Thacker and Co., Lond.; Tottenham Education Committee, Clerk to the; Major W. J. Turrell, R.A.M.C (T.); Dr. H. M. Turnbull, Lond.; Dr. K. Taylor, Ris Orangis; Dr. H. Terry, Northwich; Dr. J. Tatham, Old Oxtead.

V.—Mr. A. Vernon-Ward, Lond.; Mr. W. H. Venables, Lond.

W.—Capt. C. D. Walker, R.A.M.C.; Messrs. Williams and Norgate, Lond.; Dr. E. C. Williams, Clifton; Capt. N. W. Walmsley, R.A.M.C.; Messrs. J. Williams and Son, Bradford; West London Medico-Chirurgical Society; Dr. E. W. Wood-Mason, Leamington; Messrs. W. J. Wilcox and Co., Lond. Messrs. Watson, Sons, and Room, Lond.; Messrs. John Wright and Sons, Bristol; West London Hospital Post-Graduate College, Dean of; West-End Advertising Agency, Lond.; Col. C. G. Watson, C.M.G., A.M.S.; Lieut. J. H. Wilson, R.A.M.C.; Messrs. A. J. Wilson and Co., Lond.; Walsall and District Hospital, Walsall, Sec. of.

Y.—Miss M. Yates, Lond.

Letters, each with enclosure, are also acknowledged from—

A.—Ardath Tobacco Co., Lond.; Dr. E. Allen, Harrogate; A. K. J.; American Women's War Hospital, Paignton, Sec. of; A. C. A. P.

B.—Bristol Eye Hospital, Sec. of; Capt. E. C. Bowden, R.A.M.C.; Dr. Bartrum, Bewdley; Surg. C. D. Banes, R.N.; Mrs. Berenson, Lond.; Mrs. Barham, Hove; Birmingham Corporation, Treas. to the.

C.—Capt. A. B. Clarke, R.A.M.C.; Messrs. Callard, Stewart, and Watt, Lond.; Cossor, Lond.

D.—Messrs. W. Dawson and Sons, Lond.; Mr. M. K. Dalal, Lond.; Capt. S. R. Douglas, I.M.S.

E.—E. C. I.

F.—Dr. M. Ferrier, Alnwick.

G.—Mr. H. R. Gatley, Kingston; Dr. S. Gill, Formby; Dr. F. W. Gunn, Ashington; Glasgow Royal Hospital for Sick Children, Sec. of.

H.—Messrs. C. Hearson and Co., Lond.; Messrs. A. Heywood and Son, Manchester.

J.—Capt. H. W. Jones, R.A.M.C.; Jenner Institute for Calf Lymph, Lond., Sec. of; Mr. J. Jenkins, Lond.

K.—Messrs. P. S. King and Son, Lond.; Mr. R. Kirkpatrick, Lond.; King Edward VII. Hospital, Cardiff, Sec. of.

L.—Dr. S. C. Lawrence, Enfield; London Hospital Medical College, Sec. of; Major E. G. R. Lithgow, R.A.M.C.; Lieut.-Col. M. C. Laughlin; Leicester Royal Infirmary, Sec. of.

M.—Capt. J. McDonnell, R.A.M.C.; Dr. A. H. MacGregor, Malabar; Mr. H. Messenger, Saltburn-by-the-Sea; M. A. P., Southall; Dr. J. L. Martin, Mundesley; Dr. P. Munoa, Salto; Magnetic Waves Institute, Lond., Sec of.

N.—Dr. C. Nery, Pocetos; N. M.; Dr. J. T. C. Nash, Norwich; Dr. W. Nowari, Cairo.

O.—Dr. H. F. Oldham, Morecambe; Dr. D. J. O'Keeffe, Moycullen.

P.—Dr. W. T. G. Pugh, Carshalton; Dr. C. Panchalingam, Kurunegala; Mr. F. G. Pulman, Lond.

R.—Dr. M. J. Ryan, Crumlin; Dr. R. R. Rentoul, Liverpool; The Retreat, York, Sec. of; Miss Rivington, Nottingham; Mr. A. Ross, Lond.

S.—Dr. P. T. Spencer-Phillips, Chelmsford; Messrs. J. Smith, Lond.; Mr. F. W. Sears, Lond.; Sheffield University, Registrar of; Mr. W. H. Saville, Loughborough; Messrs. Spiers and Pond, Lond.; South Devon and East Cornwall Hospital, Plymouth, Sec. of; Lieut. J. E. P. Shera, R.A.M.C.; Mr. W. B. Saw, Lond.; Lieut. L. Scudamore, R.A.M.C.; S. B., Dublin; St. Andrew's University, Factor of.

W.—West Kent General Hospital, Maidstone, Sec. of; Dr. N. Wood, Lond.; Mr. C. Worth, Lond.; Messrs. J. Walker and Co., Warrington.